SEQUENCE LISTING

<110> University of California
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Rhee, Chae-Seo
Lorenzo, Leoni M.
Malini, Sen

<120> IMMUNOLOGIC COMPOSITIONS AND METHODS FOR STUDYING AND TREATING CANCERS EXPRESSING FRIZZLED ANTIGENS

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ggctcttctc cacgtactgg aacttct 27

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<400> 21
cagcgtcttg cccgaccaga tcca 24

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tacacgtgcg acagggacac c 21

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accacagtcc atgccatcac 20

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<400> 26
tacagcaaca gggtggtgga 20

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<212> PRT
<213> Artificial Sequence

<220>
<223> pFZD2-TT

<400> 27

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Met Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala Pro Ala Leu Leu
 1               5                  10                  15
Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala Gly Gly Thr Pro
            20                  25                  30
Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr Ala Thr Leu Glu
        35                  40                  45
His Pro Phe His Cys Gly Pro Ser Leu Val Asp Asp Ala Leu Ile Asn
    50                  55                  60
Ser Thr Lys Ile Tyr Ser Tyr Phe Pro Ser Val
65                  70                  75
```

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ccgccgggac tgcagccggg tgccgggggc accccgggtg gcccgggcgg cggcggcgct     120
cccccgcgct acgccacgct ggagcacccc ttccactgcg gccccagcct ggtggacgac     180
gccctgatca acagcaccaa gatctacagc tactttccca gcgtgtag                  228
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<210> 29
<211> 75
<212> PRT
<213> Artificial Sequence

<220>
<223> pTT-FZD2

<400> 29
Met Val Asp Asp Ala Leu Ile Asn Ser Thr Lys Ile Tyr Ser Tyr Phe
 1   5   10   15
Pro Ser Val Gly Pro Ser Leu Cys Val Gly Gln Asn His Ser Glu Asp
            20   25   30
Gly Ala Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro
        35   40   45
Gly Ala Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro
    50   55   60
Arg Tyr Ala Thr Leu Glu His Pro Phe His Cys
65   70   75

<210> 30
<211> 228
<212> DNA
<213> Artificial Sequence

<220>
<223> Coding region for pTT-FZD2

<400> 30
atggtggacg acgccctgat caacagcacc aagatctaca gctactttcc cagcgtgggc 60
cccagcctgt gcgtcggcca gaaccactcc gaggacggag ctcccgcgct actcaccacc 120
gcgccgccgc cgggactgca gccgggtgcc gggggcaccc cgggtggccc gggcggcggc 180
ggcgctcccc cgcgctacgc cacgctggag cacccccttcc actgctag 228

<210> 31
<211> 75
<212> PRT
<213> Artificial sequence

<220>
<223> PFZD2-MMVF

<400> 31
Met Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala Pro Ala Leu Leu
 1   5   10   15
Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala Gly Gly Thr Pro
            20   25   30
Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr Ala Thr Leu Glu
        35   40   45
His Pro Phe His Cys Gly Pro Ser Leu Lys Leu Leu Ser Leu Ile Lys
    50   55   60
Gly Val Ile Val His Arg Leu Glu Gly Val Glu
65   70   75

<210> 32
<211> 228

<212> DNA
<213> Artificial Sequence

<220>
<223> Coding region for PFZD2-MMVF

<400> 32
atgtgcgtcg gccagaacca ctccgaggac ggagctcccg cgctactcac caccgcgccg 60
ccgccgggac tgcagccggg tgccgggggc accccgggtg gcccgggcgg cggcggcgct 120
cccccgcgct acgccacgct ggagcacccc ttccactgcg gccccagcct gaagctgctg 180
agcctgatca agggcgtgat cgtgcaccgc ctggagggcg tggagtag 228

<210> 33
<211> 75
<212> PRT
<213> Artificial Sequence

<220>
<223> PMMVF-FZD2

<400> 33
Met Lys Leu Leu Ser Leu Ile Lys Gly Val Ile Val His Arg Leu Glu
1 5 10 15
Gly Val Glu Gly Pro Ser Leu Cys Val Gly Gln Asn His Ser Glu Asp
20 25 30
Gly Ala Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro
35 40 45
Gly Ala Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro
50 55 60
Arg Tyr Ala Thr Leu Glu His Pro Phe His Cys
65 70 75

<210> 34
<211> 228
<212> DNA
<213> Artificial Sequence

<220>
<223> Coding region for PMMVF-FZD2

<400> 34
atgaagctgc tgagcctgat caagggcgtg atcgtgcacc gcctggaggg cgtggagggc 60
cccagcctgt gcgtcggcca gaaccactcc gaggacggag ctcccgcgct actcaccacc 120
gcgccgccgc cgggactgca gccgggtgcc gggggcaccc cgggtggccc gggcggcggc 180
ggcgctcccc cgcgctacgc cacgctggag cacccttcc actgctag 228

<210> 35
<211> 517
<212> PRT
<213> Mouse

<400> 35
Met Ala Val Ser Trp Ile Val Phe Asp Leu Trp Leu Leu Thr Val Phe
1 5 10 15
Leu Gly Gln Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
20 25 30
Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn

```
        35                  40                  45
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
    50                  55                  60
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
65                  70                  75                  80
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                85                  90                  95
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
            100                 105                 110
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
        115                 120                 125
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
    130                 135                 140
Leu Val Gly Asp Pro Thr Glu Tyr Ser Phe Leu His Val Arg Asp Cys
145                 150                 155                 160
Ser Pro Pro Cys Pro Asn Met Tyr Phe Arg Arg Glu Glu Leu Ser Phe
                165                 170                 175
Ala Arg Tyr Phe Ile Gly Leu Ile Ser Ile Ile Cys Leu Ser Ala Thr
            180                 185                 190
Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val Thr Arg Phe Arg Tyr
        195                 200                 205
Pro Glu Arg Pro Ile Ile Phe Tyr Ala Val Cys Tyr Met Met Val Ser
    210                 215                 220
Leu Ile Phe Phe Ile Gly Phe Leu Leu Glu Asp Arg Val Ala Cys Asn
225                 230                 235                 240
Ala Ser Ser Pro Ala Gln Tyr Lys Ala Ser Thr Val Thr Gln Gly Ser
                245                 250                 255
His Asn Lys Ala Cys Thr Met Leu Phe Met Val Leu Tyr Phe Phe Thr
            260                 265                 270
Met Ala Gly Ser Val Trp Trp Val Ile Leu Thr Ile Thr Trp Phe Leu
        275                 280                 285
Ala Ala Val Pro Lys Trp Gly Ser Glu Ala Ile Glu Lys Lys Ala Leu
    290                 295                 300
Leu Phe His Ala Ser Ala Trp Gly Ile Pro Gly Thr Leu Thr Ile Ile
305                 310                 315                 320
Leu Leu Ala Met Asn Lys Ile Glu Gly Asp Asn Ile Ser Gly Val Cys
                325                 330                 335
Phe Val Gly Leu Tyr Asp Val Asp Ala Leu Arg Tyr Phe Val Leu Ala
            340                 345                 350
Pro Leu Cys Leu Tyr Val Val Val Gly Val Ser Leu Leu Leu Ala Gly
        355                 360                 365
Ile Ile Ser Leu Asn Arg Val Arg Ile Glu Ile Pro Leu Glu Lys Glu
    370                 375                 380
Asn Gln Asp Lys Leu Val Lys Phe Met Ile Arg Ile Gly Val Phe Ser
385                 390                 395                 400
Ile Leu Tyr Leu Val Pro Leu Leu Val Val Ile Gly Cys Tyr Phe Tyr
                405                 410                 415
Glu Gln Ala Tyr Arg Gly Ile Trp Glu Thr Thr Trp Ile Gln Glu Arg
            420                 425                 430
Cys Arg Glu Tyr His Ile Pro Cys Pro Tyr Gln Val Thr Gln Met Ser
        435                 440                 445
Arg Pro Asp Leu Ile Leu Phe Leu Met Lys Tyr Leu Met Ala Leu Ile
    450                 455                 460
Val Gly Ile Pro Ser Ile Phe Trp Val Gly Ser Lys Lys Thr Cys Phe
465                 470                 475                 480
Glu Trp Ala Ser Phe Phe His Gly Arg Arg Lys Lys Glu Ile Val Asn
                485                 490                 495
```

```
Glu Ser Arg Gln Val Leu Gln Glu Pro Asp Phe Ala Gln Ser Leu Leu
            500                 505                 510
Arg Asp Pro Asn Thr
        515
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<210> 36
<211> 500
<212> PRT
<213> Mouse

<400> 36

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Met Ala Trp Pro Gly Thr Gly Pro Ser Ser Arg Gly Ala Pro Gly Gly
 1               5                  10                  15
Val Gly Leu Arg Leu Gly Leu Leu Leu Gln Phe Leu Leu Leu Leu Arg
            20                  25                  30
Pro Thr Leu Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
        35                  40                  45
Arg Ile Ala Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
    50                  55                  60
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
65                  70                  75                  80
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                85                  90                  95
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
            100                 105                 110
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
        115                 120                 125
Glu Pro Val Leu Arg Glu Phe Gly Phe Ala Trp Pro Asp Thr Leu Asn
    130                 135                 140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
145                 150                 155                 160
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Leu Asn
                165                 170                 175
Cys Val Leu Lys Cys Gly Tyr Asp Ala Gly Leu Tyr Ser Arg Ser Ala
            180                 185                 190
Lys Glu Phe Thr Asp Ile Trp Met Ala Val Trp Ala Ser Leu Cys Phe
        195                 200                 205
Ile Ser Thr Thr Phe Thr Val Leu Thr Phe Leu Ile Asp Ser Ser Arg
    210                 215                 220
Phe Ser Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met Cys Tyr Asn
225                 230                 235                 240
Ile Tyr Ser Ile Ala Tyr Ile Val Arg Leu Thr Val Gly Arg Glu Arg
                245                 250                 255
Ile Ser Cys Asp Phe Glu Glu Ala Ala Glu Pro Val Leu Ile Gln Glu
            260                 265                 270
Gly Leu Lys Asn Thr Gly Cys Ala Ile Ile Phe Leu Leu Met Tyr Phe
        275                 280                 285
Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu Thr Leu Thr Trp
    290                 295                 300
Phe Leu Ala Ala Gly Leu Lys Trp Gly His Glu Ala Ile Glu Met His
305                 310                 315                 320
Ser Ser Tyr Phe His Ile Ala Ala Trp Ala Ile Pro Ala Val Lys Thr
                325                 330                 335
Ile Val Ile Leu Ile Met Arg Leu Val Asp Ala Asp Glu Leu Thr Gly
            340                 345                 350
Leu Cys Tyr Val Gly Asn Gln Asn Leu Asp Ala Leu Thr Gly Phe Val
        355                 360                 365
```

```
Val Ala Pro Leu Phe Thr Tyr Leu Val Ile Gly Thr Leu Phe Ile Ala
    370                 375                 380
Ala Gly Leu Val Ala Leu Phe Lys Ile Arg Ser Asn Leu Gln Lys Asp
385                 390                 395                 400
Gly Thr Lys Thr Asp Lys Leu Glu Arg Leu Met Val Lys Ile Gly Val
                405                 410                 415
Phe Ser Val Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Ala Cys Tyr
            420                 425                 430
Phe Tyr Glu Ile Ser Asn Trp Ala Leu Phe Arg Tyr Ser Ala Asp Asp
        435                 440                 445
Ser Asn Met Ala Val Glu Met Leu Lys Ile Phe Met Ser Leu Leu Val
    450                 455                 460
Gly Ile Thr Ser Gly Met Trp Ile Trp Ser Ala Lys Thr Leu His Thr
465                 470                 475                 480
Trp Gln Lys Cys Ser Asn Arg Leu Val Asn Ser Gly Lys Val Lys Arg
                485                 490                 495
Glu Lys Arg Gly
            500
```

<210> 37
<211> 599
<212> PRT
<213> Mouse

<400> 37

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Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
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Ala Val Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
            20                  25                  30
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
        35                  40                  45
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
    50                  55                  60
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
65                  70                  75                  80
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
                85                  90                  95
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
            100                 105                 110
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
        115                 120                 125
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
    130                 135                 140
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
145                 150                 155                 160
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Pro Gly Glu Gln
                165                 170                 175
Pro Pro Ser Gly Ser Gly His Ser Arg Pro Pro Gly Ala Arg Pro Pro
            180                 185                 190
His Arg Gly Gly Ser Ser Arg Gly Ser Gly Asp Ala Ala Ala Ala Pro
        195                 200                 205
Pro Ser Arg Gly Gly Lys Thr Gly Gln Ile Ala Asn Cys Ala Leu Pro
    210                 215                 220
Cys His Asn Pro Phe Phe Ser Gln Asp Glu Arg Ala Phe Thr Val Phe
225                 230                 235                 240
Trp Ile Gly Leu Trp Ser Val Leu Cys Phe Val Ser Thr Phe Ala Thr
                245                 250                 255
```

```
Val Ser Thr Phe Leu Ile Asp Met Glu Arg Phe Lys Tyr Pro Glu Arg
            260                 265                 270
Pro Ile Ile Phe Leu Ser Ala Cys Tyr Leu Phe Val Ser Val Gly Tyr
        275                 280                 285
Leu Val Arg Leu Val Ala Gly His Glu Lys Val Ala Cys Ser Gly Gly
    290                 295                 300
Ala Pro Gly Ala Gly Gly Arg Gly Gly Ala Gly Gly Ala Ala Ala Ala
305                 310                 315                 320
Gly Ala Gly Ala Ala Gly Arg Gly Ala Ser Ser Pro Gly Ala Arg Gly
                325                 330                 335
Glu Tyr Glu Glu Leu Gly Ala Val Glu Gln His Val Arg Tyr Glu Thr
            340                 345                 350
Thr Gly Pro Ala Leu Cys Thr Val Val Phe Leu Leu Val Tyr Phe Phe
        355                 360                 365
Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp Phe
    370                 375                 380
Leu Ala Ala Gly Met Lys Trp Gly Asn Glu Ala Ile Ala Gly Tyr Ser
385                 390                 395                 400
Gln Tyr Phe His Leu Ala Ala Trp Leu Val Pro Ser Val Lys Ser Ile
                405                 410                 415
Ala Val Leu Ala Leu Ser Ser Val Asp Gly Asp Pro Val Ala Gly Ile
            420                 425                 430
Cys Tyr Val Gly Asn Gln Ser Leu Asp Asn Leu Arg Gly Phe Val Leu
        435                 440                 445
Ala Pro Leu Val Ile Tyr Leu Phe Ile Gly Thr Met Phe Leu Leu Ala
    450                 455                 460
Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val Ile Lys Gln Gln Gly
465                 470                 475                 480
Gly Pro Thr Lys Thr His Lys Leu Glu Lys Leu Met Ile Arg Leu Gly
                485                 490                 495
Leu Phe Thr Val Leu Tyr Thr Val Pro Ala Ala Val Val Val Ala Cys
            500                 505                 510
Leu Phe Tyr Glu Gln His Asn Arg Pro Arg Trp Glu Ala Thr His Asn
        515                 520                 525
Cys Pro Cys Leu Arg Asp Leu Gln Pro Asp Gln Ala Arg Arg Pro Asp
    530                 535                 540
Tyr Ala Val Phe Met Leu Lys Tyr Phe Met Cys Leu Val Val Gly Ile
545                 550                 555                 560
Thr Ser Gly Val Trp Val Trp Ser Gly Lys Thr Leu Glu Ser Trp Arg
                565                 570                 575
Ala Leu Cys Thr Arg Cys Cys Trp Ala Ser Lys Gly Ala Ala Val Gly
            580                 585                 590
Ala Gly Ala Gly Gly Ser Gly
        595
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<210> 38
<211> 516
<212> PRT
<213> Homo sapiens

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<400> 38
Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu Leu
 1               5                  10                  15
Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val
            20                  25                  30
Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
        35                  40                  45
```

```
Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
    50                  55                  60
Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
65                  70                  75                  80
Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
                85                  90                  95
Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
            100                 105                 110
Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
        115                 120                 125
Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
    130                 135                 140
Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
145                 150                 155                 160
Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
                165                 170                 175
Ala Ser Gly Gly Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys
            180                 185                 190
Tyr Gln Pro Ser Phe Ser Ala Asp Glu Arg Thr Phe Ala Thr Phe Trp
        195                 200                 205
Ile Gly Leu Trp Ser Val Leu Cys Phe Ile Ser Thr Ser Thr Thr Val
    210                 215                 220
Ala Thr Phe Leu Ile Asp Met Asp Thr Phe Arg Tyr Pro Glu Arg Pro
225                 230                 235                 240
Ile Ile Phe Leu Ser Ala Cys Tyr Leu Cys Val Ser Leu Gly Phe Leu
                245                 250                 255
Val Arg Leu Val Val Gly His Ala Ser Val Ala Cys Ser Arg Glu His
            260                 265                 270
Asn His Ile His Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Ile Val
        275                 280                 285
Phe Leu Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val
    290                 295                 300
Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Ala Met Lys Trp Gly Asn
305                 310                 315                 320
Glu Ala Ile Ala Gly Tyr Gly Gln Tyr Phe His Leu Ala Ala Trp Leu
                325                 330                 335
Ile Pro Ser Val Lys Ser Ile Thr Ala Leu Ala Leu Ser Ser Val Asp
            340                 345                 350
Gly Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Asn Leu Asn
        355                 360                 365
Ser Leu Arg Arg Phe Val Leu Gly Pro Leu Val Leu Tyr Leu Leu Val
    370                 375                 380
Gly Thr Leu Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg
385                 390                 395                 400
Ser Val Ile Lys Gln Gly Gly Thr Lys Thr Asp Lys Leu Glu Lys Leu
                405                 410                 415
Met Ile Arg Ile Gly Ile Phe Thr Leu Leu Tyr Thr Val Pro Ala Ser
            420                 425                 430
Ile Val Val Ala Cys Tyr Leu Tyr Glu Gln His Tyr Arg Glu Ser Trp
        435                 440                 445
Glu Ala Ala Leu Thr Cys Ala Cys Pro Gly His Asp Thr Gly Gln Pro
    450                 455                 460
Arg Ala Lys Pro Glu Tyr Trp Val Leu Met Leu Lys Tyr Phe Met Cys
465                 470                 475                 480
Leu Val Val Gly Ile Thr Ser Gly Val Trp Ile Trp Ser Gly Lys Thr
                485                 490                 495
Val Glu Ser Trp Arg Arg Phe Thr Ser Arg Cys Cys Cys Arg Pro Arg
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            500                 505                 510
Arg Gly His Lys
        515

<210> 39
<211> 533
<212> PRT
<213> Homo sapiens

<400> 39
Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu Leu
 1               5                  10                  15
Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg
            20                  25                  30
Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg
        35                  40                  45
Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr
    50                  55                  60
Ser Gln Gly Glu Ala Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val
65                  70                  75                  80
Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr
                85                  90                  95
Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg
            100                 105                 110
Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln
        115                 120                 125
Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr
    130                 135                 140
Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr
145                 150                 155                 160
Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
                165                 170                 175
Pro Arg Pro Ala Arg Pro Pro Gly Arg Ser Cys Ala Pro Arg Cys Gly
            180                 185                 190
Pro Gly Val Glu Val Phe Trp Ser Arg Arg Asp Lys Asp Phe Ala Leu
        195                 200                 205
Val Trp Met Ala Val Trp Ser Ala Leu Cys Phe Phe Ser Thr Ala Phe
    210                 215                 220
Thr Val Leu Thr Phe Leu Leu Glu Pro His Arg Phe Gln Tyr Pro Glu
225                 230                 235                 240
Arg Pro Ile Ile Phe Leu Ser Met Cys Tyr Asn Val Tyr Ser Leu Ala
                245                 250                 255
Phe Leu Ile Arg Ala Val Ala Gly Ala Gln Ser Val Ala Cys Asp Gln
            260                 265                 270
Glu Ala Gly Ala Leu Tyr Val Ile Gln Glu Gly Leu Glu Asn Thr Gly
        275                 280                 285
Cys Thr Leu Val Phe Leu Leu Leu Tyr Tyr Phe Gly Met Ala Ser Ser
    290                 295                 300
Leu Trp Trp Val Val Leu Thr Leu Thr Trp Phe Leu Ala Ala Gly Lys
305                 310                 315                 320
Lys Trp Gly His Glu Ala Ile Glu Ala His Gly Ser Tyr Phe His Met
                325                 330                 335
Ala Ala Trp Gly Leu Pro Ala Leu Lys Thr Ile Val Ile Leu Thr Leu
            340                 345                 350
Arg Lys Val Ala Gly Asp Glu Leu Thr Gly Leu Cys Tyr Val Ala Ser
        355                 360                 365
Thr Asp Ala Ala Ala Leu Thr Gly Phe Val Leu Val Pro Leu Ser Gly
```

```
    370                 375                 380
Tyr Leu Val Leu Gly Ser Ser Phe Leu Leu Thr Gly Phe Val Ala Leu
385                 390                 395                 400
Phe His Ile Arg Lys Ile Met Lys Thr Gly Gly Thr Asn Thr Glu Lys
                405                 410                 415
Leu Glu Lys Leu Met Val Lys Ile Gly Val Phe Ser Ile Leu Tyr Thr
            420                 425                 430
Val Pro Ala Thr Cys Val Ile Val Cys Tyr Val Tyr Glu Arg Leu Asn
        435                 440                 445
Met Asp Phe Trp Arg Leu Arg Ala Thr Glu Gln Pro Cys Ala Ala Ala
    450                 455                 460
Ala Gly Pro Gly Gly Arg Arg Asp Cys Ser Leu Pro Gly Gly Ser Val
465                 470                 475                 480
Pro Thr Val Ala Val Phe Met Leu Lys Ile Phe Met Ser Leu Val Val
                485                 490                 495
Gly Ile Thr Ser Gly Val Trp Val Trp Ser Ser Lys Thr Phe Gln Thr
            500                 505                 510
Trp Gln Ser Leu Cys Tyr Arg Lys Ile Ala Ala Gly Arg Ala Arg Ala
        515                 520                 525
Lys Ala Cys Arg Ala
    530
```

<210> 40
<211> 544
<212> PRT
<213> Rat

<400> 40

```
Leu Glu Ala Pro Leu Leu Leu Gly Val Arg Ala Gln Pro Ala Gly Gln
 1               5                  10                  15
Val Ser Gly Pro Gly Gln Gln Arg Pro Pro Pro Pro Gln Pro Gln Gln
            20                  25                  30
Gly Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Ile Pro Asp His
        35                  40                  45
Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr
    50                  55                  60
Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp
65                  70                  75                  80
Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys
                85                  90                  95
Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys
            100                 105                 110
Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu Arg
        115                 120                 125
Ala Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro
    130                 135                 140
Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly Glu Leu
145                 150                 155                 160
Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro Ser Leu
                165                 170                 175
Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Leu Gly Glu Lys
            180                 185                 190
Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys Val Tyr Gly Leu Met Tyr
        195                 200                 205
Phe Gly Pro Glu Glu Leu Arg Phe Ser Arg Thr Trp Ile Gly Ile Trp
    210                 215                 220
Ser Val Leu Cys Cys Ala Ser Thr Leu Phe Thr Val Leu Thr Tyr Leu
```

```
225                 230                 235                 240
Val Asp Met Arg Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile Phe Leu
                245                 250                 255
Ser Gly Cys Tyr Thr Ala Val Ala Val Ala Tyr Ile Ala Gly Phe Leu
            260                 265                 270
Leu Glu Asp Arg Val Val Cys Asn Asp Lys Phe Ala Glu Asp Gly Ala
        275                 280                 285
Arg Thr Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu Phe
    290                 295                 300
Met Met Leu Tyr Phe Phe Ser Met Ala Ser Ser Ile Trp Trp Val Ile
305                 310                 315                 320
Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly His Glu
                325                 330                 335
Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala Ala Trp Ala Val
            340                 345                 350
Pro Ala Ile Lys Thr Ile Thr Ile Leu Ala Leu Gly Gln Val Asp Gly
        355                 360                 365
Asp Val Leu Ser Gly Val Cys Phe Val Gly Leu Asn Asn Val Asp Ala
    370                 375                 380
Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr Leu Phe Ile Gly
385                 390                 395                 400
Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Thr
                405                 410                 415
Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu Glu Lys Leu Met
            420                 425                 430
Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala Thr Ile
        435                 440                 445
Val Ile Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg Asp Gln Trp Glu
    450                 455                 460
Arg Ser Trp Val Ala Gln Ser Cys Lys Ser Tyr Ala Ile Pro Cys Pro
465                 470                 475                 480
His Leu Gln Gly Gly Gly Gly Val Pro Pro His Pro Pro Met Ser Pro
                485                 490                 495
Asp Phe Thr Val Phe Met Ile Lys Tyr Leu Met Thr Leu Ile Val Gly
            500                 505                 510
Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly Lys Thr Leu Asn Ser Trp
        515                 520                 525
Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Lys Gln Gly Glu Thr Thr
    530                 535                 540
```

<210> 41
<211> 529
<212> PRT
<213> Rat

<400> 41

```
Met Arg Ala Arg Ser Ala Leu Pro Arg Ser Ala Leu Pro Arg Leu Leu
 1               5                  10                  15
Leu Pro Leu Leu Leu Leu Pro Ala Ala Gly Pro Ala Gln Phe His Gly
            20                  25                  30
Glu Lys Gly Ile Ser Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser
        35                  40                  45
Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn
    50                  55                  60
Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln
65                  70                  75                  80
Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe
```

```
                85                  90                  95
Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile
            100                 105                 110
Pro Pro Cys Arg Ser Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala
        115                 120                 125
Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu
    130                 135                 140
His Phe Pro Arg His Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His
145                 150                 155                 160
Ser Glu Asp Gly Thr Pro Ala Leu Leu Thr Thr Ala Pro Pro Ser Gly
                165                 170                 175
Leu Gln Pro Gly Leu Gly Glu Arg Asp Cys Ala Ala Pro Cys Glu Pro
            180                 185                 190
Ala Arg Pro Asp Gly Ser Met Phe Phe Ser His His His Thr Arg Phe
        195                 200                 205
Ala Arg Leu Trp Ile Leu Thr Trp Ser Val Leu Cys Cys Ala Ser Thr
    210                 215                 220
Phe Phe Thr Val Thr Thr Ser Leu Val Ala Met Gln Arg Phe Arg Tyr
225                 230                 235                 240
Pro Glu Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr Met Val Ser
                245                 250                 255
Val Ala Tyr Ile Ala Gly Phe Val Leu Gln Glu Arg Val Val Cys Asn
            260                 265                 270
Glu Arg Phe Ser Glu Asp Gly Tyr Arg Thr Val Gly Gln Gly Thr Lys
        275                 280                 285
Lys Glu Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe Phe Ser Met
    290                 295                 300
Ala Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala
305                 310                 315                 320
Ala Gly Met Lys Trp Gly His Ala Ala Ile Glu Ala Asn Ser Gln Tyr
                325                 330                 335
Phe His Leu Ala Ala Trp Ala Val Pro Ala Val Lys Thr Ile Thr Ile
            340                 345                 350
Leu Ala Met Gly Gln Ile Asp Gly Asp Leu Leu Ser Gly Val Cys Phe
        355                 360                 365
Val Gly Leu Asn Arg Leu Asp Pro Leu Arg Gly Phe Val Leu Ala Pro
    370                 375                 380
Leu Phe Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe
385                 390                 395                 400
Val Ser Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys
                405                 410                 415
Thr Glu Pro Leu Glu Arg Leu Met Val Arg Ile Gly Val Phe Ser Val
            420                 425                 430
Leu Tyr Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr Phe Tyr Glu
        435                 440                 445
Gln Ala Phe Arg Glu His Trp Glu Arg Ser Trp Val Ser Gln His Cys
    450                 455                 460
Lys Ser Leu Ala Ile Pro Cys Pro Ala His Tyr Thr Pro Arg Thr Ser
465                 470                 475                 480
Pro Asp Phe Thr Val Tyr Met Ile Lys Tyr Leu Met Thr Leu Ile Val
                485                 490                 495
Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly Lys Thr Leu His Ser
            500                 505                 510
Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Arg His Gly Glu Thr
        515                 520                 525
Thr
```

<210> 42
<211> 536
<212> PRT
<213> Drosophila

<400> 42

```
Ile Leu Pro Thr Leu Ile Gln Gly Val Gln Arg Tyr Asp Gln Ser Pro
 1               5                  10                  15
Leu Asp Ala Ser Pro Tyr Tyr Arg Ser Gly Gly Gly Leu Met Ala Ser
            20                  25                  30
Ser Gly Thr Glu Leu Asp Gly Leu Pro His His Asn Arg Cys Glu Pro
        35                  40                  45
Ile Thr Ile Ser Ile Cys Lys Asn Ile Pro Tyr Asn Met Thr Ile Met
    50                  55                  60
Pro Asn Leu Ile Gly His Thr Lys Gln Glu Glu Ala Gly Leu Glu Val
65                  70                  75                  80
His Gln Phe Ala Pro Leu Val Lys Ile Gly Cys Ser Asp Asp Leu Gln
                85                  90                  95
Leu Phe Leu Cys Ser Leu Tyr Val Pro Val Cys Thr Ile Leu Glu Arg
            100                 105                 110
Pro Ile Pro Pro Cys Arg Ser Leu Cys Glu Ser Ala Arg Val Cys Glu
        115                 120                 125
Lys Leu Met Lys Thr Tyr Asn Phe Asn Trp Pro Glu Asn Leu Glu Cys
    130                 135                 140
Ser Lys Phe Pro Val His Gly Gly Glu Asp Leu Cys Val Ala Glu Asn
145                 150                 155                 160
Thr Thr Ser Ser Ala Ser Thr Ala Ala Thr Pro Thr Arg Ser Val Ala
                165                 170                 175
Val Gly Gly Lys Asp Leu His Asp Cys Gly Ala Pro Cys His Ala Met
            180                 185                 190
Phe Phe Pro Glu Arg Glu Arg Thr Val Leu Arg Tyr Trp Val Gly Ser
        195                 200                 205
Trp Ala Ala Val Cys Val Ala Ser Cys Leu Phe Thr Val Leu Thr Phe
    210                 215                 220
Leu Ile Asp Ser Ser Arg Phe Arg Tyr Pro Glu Arg Ala Ile Val Phe
225                 230                 235                 240
Leu Ala Val Cys Tyr Leu Val Val Gly Cys Ala Tyr Val Ala Gly Leu
                245                 250                 255
Gly Ala Gly Asp Ser Val Ser Cys Arg Glu Pro Phe Pro Pro Pro Val
            260                 265                 270
Lys Leu Gly Arg Leu Gln Met Met Ser Thr Ile Thr Gln Gly His Arg
        275                 280                 285
Gln Thr Thr Ser Cys Thr Val Leu Phe Met Ala Leu Tyr Phe Cys Cys
    290                 295                 300
Met Ala Ala Phe Ala Trp Trp Ser Cys Leu Ala Phe Ala Trp Phe Leu
305                 310                 315                 320
Ala Ala Gly Leu Lys Trp Gly His Glu Ala Ile Glu Asn Lys Ser His
                325                 330                 335
Leu Phe His Leu Val Ala Trp Ala Val Pro Ala Leu Gln Thr Ile Ser
            340                 345                 350
Val Leu Ala Leu Ala Lys Val Glu Gly Asp Ile Leu Ser Gly Val Cys
        355                 360                 365
Phe Val Gly Gln Leu Asp Thr His Ser Leu Gly Ala Phe Leu Ile Leu
    370                 375                 380
Pro Leu Cys Ile Tyr Leu Ser Ile Gly Ala Leu Phe Leu Leu Ala Gly
385                 390                 395                 400
```

```
Phe Ile Ser Leu Phe Arg Ile Arg Thr Val Met Lys Thr Asp Gly Lys
                405                 410                 415
Arg Thr Asp Lys Leu Glu Arg Leu Met Leu Arg Ile Gly Phe Phe Ser
            420                 425                 430
Gly Leu Phe Ile Leu Pro Ala Val Gly Leu Leu Gly Cys Leu Phe Tyr
        435                 440                 445
Glu Tyr Tyr Asn Phe Asp Glu Trp Met Ile Gln Trp His Arg Asp Ile
    450                 455                 460
Cys Lys Pro Phe Ser Ile Pro Cys Pro Ala Ala Arg Ala Pro Gly Ser
465                 470                 475                 480
Pro Glu Ala Arg Pro Ile Phe Gln Ile Phe Met Val Lys Tyr Leu Cys
                485                 490                 495
Ser Met Leu Val Gly Val Thr Ser Ser Val Trp Leu Tyr Ser Ser Lys
            500                 505                 510
Thr Met Val Ser Trp Arg Asn Phe Val Glu Arg Leu Gln Gly Lys Glu
        515                 520                 525
Pro Arg Thr Arg Ala Gln Ala Tyr
    530                 535

<210> 43
<211> 570
<212> PRT
<213> Drosophila

<400> 43
Gly Leu Val Leu Leu Leu Thr Ser Cys Arg Ala Asp Gly Pro Leu His
 1               5                  10                  15
Ser Ala Asp His Gly Met Gly Gly Met Gly Met Gly Gly His Gly Leu
            20                  25                  30
Asp Ala Ser Pro Ala Pro Gly Tyr Gly Val Pro Ala Ile Pro Lys Asp
        35                  40                  45
Pro Asn Leu Arg Cys Glu Glu Ile Thr Ile Pro Met Cys Arg Gly Ile
    50                  55                  60
Gly Tyr Asn Met Thr Ser Phe Pro Asn Glu Met Asn His Glu Thr Gln
65                  70                  75                  80
Asp Glu Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile
                85                  90                  95
Lys Cys Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro
            100                 105                 110
Ile Cys Leu Glu Asp Tyr His Lys Pro Leu Pro Val Cys Arg Ser Val
        115                 120                 125
Cys Glu Arg Ala Arg Ser Gly Cys Ala Pro Ile Met Gln Gln Tyr Ser
    130                 135                 140
Phe Glu Trp Pro Glu Arg Met Ala Cys Glu His Leu Pro Leu His Gly
145                 150                 155                 160
Asp Pro Asp Asn Leu Cys Met Glu Gln Pro Ser Tyr Thr Glu Ala Gly
                165                 170                 175
Ser Gly Gly Ser Ser Gly Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly
            180                 185                 190
Ser Gly Gly Lys Arg Lys Gln Gly Gly Ser Gly Ser Gly Gly Ser Gly
        195                 200                 205
Ala Gly Gly Ser Ser Gly Ser Thr Ser Thr Lys Pro Cys Arg Gly Arg
    210                 215                 220
Gln Arg Ile Ala Gly Val Pro Asn Cys Gly Ile Pro Cys Lys Gly Pro
225                 230                 235                 240
Phe Phe Ser Asn Asp Glu Lys Asp Phe Ala Gly Leu Trp Ile Ala Leu
                245                 250                 255
```

```
Trp Ser Gly Leu Cys Phe Cys Ser Thr Leu Met Thr Leu Thr Thr Phe
            260                 265                 270
Ile Ile Asp Thr Glu Arg Phe Lys Tyr Pro Glu Arg Pro Ile Val Phe
        275                 280                 285
Leu Ser Ala Cys Tyr Phe Met Val Ala Val Gly Tyr Leu Ser Arg Asn
    290                 295                 300
Phe Leu Gln Asn Glu Glu Ile Ala Cys Asp Gly Leu Leu Leu Arg Glu
305                 310                 315                 320
Ser Ser Thr Gly Pro His Ser Cys Thr Leu Val Phe Leu Leu Thr Tyr
                325                 330                 335
Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu Thr Phe Thr
            340                 345                 350
Trp Phe Leu Ala Ala Gly Leu Lys Trp Gly Asn Glu Ala Ile Thr Lys
        355                 360                 365
His Ser Gln Tyr Phe His Leu Ala Ala Trp Leu Ile Pro Thr Val Gln
    370                 375                 380
Ser Val Ala Val Leu Leu Leu Ser Ala Val Asp Gly Asp Pro Ile Leu
385                 390                 395                 400
Gly Ile Cys Tyr Val Gly Asn Leu Asn Pro Asp His Leu Lys Thr Phe
                405                 410                 415
Val Leu Ala Pro Leu Phe Val Tyr Leu Val Ile Gly Thr Thr Phe Leu
            420                 425                 430
Met Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val Ile Lys Gln
        435                 440                 445
Gln Gly Gly Val Gly Ala Gly Val Lys Ala Asp Lys Leu Glu Lys Leu
    450                 455                 460
Met Ile Arg Ile Gly Ile Phe Ser Val Leu Tyr Thr Val Pro Ala Thr
465                 470                 475                 480
Ile Val Ile Gly Cys Tyr Leu Tyr Glu Ala Ala Tyr Phe Glu Asp Trp
                485                 490                 495
Ile Lys Ala Leu Ala Cys Pro Cys Ala Gln Val Lys Gly Pro Gly Lys
            500                 505                 510
Lys Pro Leu Tyr Ser Val Leu Met Leu Lys Tyr Phe Met Ala Leu Ala
        515                 520                 525
Val Gly Ile Thr Ser Gly Val Trp Ile Trp Ser Gly Lys Thr Leu Glu
    530                 535                 540
Ser Trp Arg Arg Phe Trp Arg Arg Leu Leu Gly Ala Pro Asp Arg Thr
545                 550                 555                 560
Gly Ala Asn Gln Ala Leu Ile Lys Gln Arg
                565                 570
```

<210> 44
<211> 647
<212> PRT
<213> Homo sapiens

<400> 44

```
Met Ala Glu Glu Glu Ala Pro Lys Lys Ser Arg Ala Ala Gly Gly Gly
 1               5                  10                  15
Ala Ser Trp Glu Leu Cys Ala Gly Ala Leu Ser Ala Arg Leu Ala Glu
            20                  25                  30
Glu Gly Ser Gly Asp Ala Gly Gly Arg Arg Arg Pro Pro Val Asp Pro
        35                  40                  45
Arg Arg Leu Ala Arg Gln Leu Leu Leu Leu Leu Trp Leu Leu Glu Ala
    50                  55                  60
Pro Leu Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Gly Pro Gly
65                  70                  75                  80
```

```
Gln Gly Pro Gly Pro Gly Gln Gln Pro Pro Pro Pro Pro Gln Gln Gln
                85                  90                  95
Gln Ser Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Val Pro Asp
            100                 105                 110
His Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala
        115                 120                 125
Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu
    130                 135                 140
Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln
145                 150                 155                 160
Cys Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val
                165                 170                 175
Cys Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu
            180                 185                 190
Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln
        195                 200                 205
Trp Pro Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly
    210                 215                 220
Glu Leu Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro
225                 230                 235                 240
Ser Leu Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Gly Gly
                245                 250                 255
Gly His Arg Gly Gly Phe Pro Gly Gly Ala Gly Ala Ser Glu Arg Gly
            260                 265                 270
Lys Phe Ser Cys Pro Arg Ala Leu Lys Val Pro Ser Tyr Leu Asn Tyr
        275                 280                 285
His Phe Leu Gly Glu Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys
    290                 295                 300
Val Tyr Gly Leu Met Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser Arg
305                 310                 315                 320
Thr Trp Ile Gly Ile Trp Ser Val Leu Cys Cys Ala Ser Thr Leu Phe
                325                 330                 335
Thr Val Leu Thr Tyr Leu Val Asp Met Arg Arg Phe Ser Tyr Pro Glu
            340                 345                 350
Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr Ala Val Ala Val Ala
        355                 360                 365
Tyr Ile Ala Gly Phe Leu Leu Glu Asp Arg Val Val Cys Asn Asp Lys
    370                 375                 380
Phe Ala Glu Asp Gly Ala Arg Thr Val Ala Gln Gly Thr Lys Lys Glu
385                 390                 395                 400
Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe Phe Ser Met Ala Ser
                405                 410                 415
Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly
            420                 425                 430
Met Lys Trp Gly His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His
        435                 440                 445
Leu Ala Ala Trp Ala Val Pro Ala Ile Lys Thr Ile Thr Ile Leu Ala
    450                 455                 460
Leu Gly Gln Val Asp Gly Asp Val Leu Ser Gly Val Cys Phe Val Gly
465                 470                 475                 480
Leu Asn Asn Val Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe
                485                 490                 495
Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser
            500                 505                 510
Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu
        515                 520                 525
Lys Leu Glu Lys Leu Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr
```

```
    530                 535                 540
Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr Phe Tyr Glu Gln Ala
545                 550                 555                 560
Phe Arg Asp Gln Trp Glu Arg Ser Trp Val Ala Gln Ser Cys Lys Ser
                565                 570                 575
Tyr Ala Ile Pro Cys Pro His Leu Gln Ala Gly Gly Gly Ala Pro Pro
            580                 585                 590
His Pro Pro Met Ser Pro Asp Phe Thr Val Phe Met Ile Lys Tyr Leu
        595                 600                 605
Met Thr Leu Ile Val Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly
    610                 615                 620
Lys Thr Leu Asn Ser Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser
625                 630                 635                 640
Lys Gln Gly Glu Thr Thr Val
                645
```

<210> 45
<211> 626
<212> PRT
<213> Mouse

<400> 45

```
Met Ala Glu Glu Ala Ala Pro Ser Glu Ser Arg Ala Ala Gly Arg Leu
 1                5                  10                  15
Ser Leu Glu Leu Cys Ala Glu Ala Leu Pro Gly Arg Arg Glu Glu Val
            20                  25                  30
Gly His Glu Asp Thr Ala Ser His Arg Arg Pro Arg Ala Asp Pro Arg
        35                  40                  45
Arg Trp Ala Ser Gly Leu Leu Leu Leu Leu Trp Leu Leu Glu Ala Pro
    50                  55                  60
Leu Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Val Ser Gly Pro
65                  70                  75                  80
Gly Gln Gln Ala Pro Pro Pro Pro Gln Pro Gln Gln Ser Gly Gln Gln
                85                  90                  95
Tyr Asn Gly Glu Arg Gly Ile Ser Ile Pro Asp His Gly Tyr Cys Gln
            100                 105                 110
Pro Ile Ser Ile Pro Leu Cys Thr Asp Met Ala Tyr Asn Gln Thr Ile
        115                 120                 125
Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly Leu Glu
    130                 135                 140
Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Ala Glu Leu
145                 150                 155                 160
Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val Leu Glu
                165                 170                 175
Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg Gln Gly
            180                 185                 190
Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Asp Thr Leu
        195                 200                 205
Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly Glu Leu Cys Val Gly
    210                 215                 220
Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro Ser Leu Leu Pro Glu
225                 230                 235                 240
Phe Trp Thr Ser Asn Gly Gln His Gly Gly Gly Gly Tyr Arg Gly Gly
                245                 250                 255
Tyr Pro Gly Gly Ala Gly Thr Val Glu Arg Gly Lys Phe Ser Cys Pro
            260                 265                 270
Arg Ala Leu Arg Val Pro Ser Tyr Leu Asn Tyr His Phe Leu Gly Glu
```

```
        275                 280                 285
Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys Val Tyr Gly Leu Met
    290                 295                 300
Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser Arg Thr Trp Ile Gly Ile
305                 310                 315                 320
Trp Ser Val Leu Cys Cys Ala Ser Thr Leu Phe Thr Val Leu Thr Tyr
                325                 330                 335
Leu Val Asp Met Pro Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile Ser
            340                 345                 350
Leu Ser Gly Cys Tyr Thr Ala Val Ala Val Ala Tyr Ile Ala Gly Phe
        355                 360                 365
Leu Leu Glu Asp Arg Val Val Cys Asn Asp Lys Phe Ala Glu Asp Gly
    370                 375                 380
Ala Arg Thr Val Ala Gln Gly Thr Asn Lys Glu Gly Cys Thr Ile Leu
385                 390                 395                 400
Phe Met Met Leu Tyr Phe Phe Ser Met Ala Ser Ser Ile Trp Trp Val
                405                 410                 415
Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly His
            420                 425                 430
Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala Ala Trp Ala
        435                 440                 445
Val Pro Ala Ile Lys Thr Ile Thr Ile Leu Ala Leu Gly Gln Val Asp
    450                 455                 460
Gly Asp Val Leu Ser Gly Val Cys Phe Leu Gly Leu Asn Asn Val Asp
465                 470                 475                 480
Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr Leu Phe Ile
                485                 490                 495
Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg
            500                 505                 510
Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu Glu Lys Leu
        515                 520                 525
Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala Thr
    530                 535                 540
Ile Val Ile Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg Asp Gln Trp
545                 550                 555                 560
Glu Arg Ser Trp Val Ala Gln Ser Cys Lys Ser Tyr Ala Ile Pro Cys
                565                 570                 575
Pro His Leu Gln Gly Gly Gly Gly Val Pro Pro His Pro Pro Met Ser
            580                 585                 590
Pro Asp Phe Thr Val Phe Met Ile Lys Tyr Leu Met Thr Leu Asn Ser
        595                 600                 605
Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Lys Gln Gly Glu Thr
    610                 615                 620
Thr Val
625
```

<210> 46
<211> 565
<212> PRT
<213> Homo sapiens

<400> 46

```
Met Arg Pro Arg Ser Ala Leu Pro Arg Leu Leu Leu Pro Leu Leu Leu
 1               5                  10                  15
Leu Pro Ala Ala Gly Pro Ala Gln Phe His Gly Glu Lys Gly Ile Ser
            20                  25                  30
Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr
```

```
        35                  40                  45
Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr
    50                  55                  60
Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val
65                  70                  75                  80
Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr
                85                  90                  95
Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile Pro Pro Cys Arg Ser
            100                 105                 110
Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe
        115                 120                 125
Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu His Phe Pro Arg His
    130                 135                 140
Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala
145                 150                 155                 160
Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala
                165                 170                 175
Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr
            180                 185                 190
Ala Thr Leu Glu His Pro Phe His Cys Pro Arg Val Leu Lys Val Pro
        195                 200                 205
Ser Tyr Leu Ser Tyr Lys Phe Leu Gly Glu Arg Asp Cys Ala Ala Pro
    210                 215                 220
Cys Glu Pro Ala Arg Pro Asp Gly Ser Met Phe Phe Ser Gln Glu Glu
225                 230                 235                 240
Thr Arg Phe Ala Arg Leu Trp Ile Leu Thr Trp Ser Val Leu Cys Cys
                245                 250                 255
Ala Ser Thr Phe Phe Thr Val Thr Thr Tyr Leu Val Asp Met Gln Arg
            260                 265                 270
Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Gly Cys Tyr Thr
        275                 280                 285
Met Val Ser Val Ala Tyr Ile Ala Gly Phe Val Leu Gln Glu Arg Val
    290                 295                 300
Val Cys Asn Glu Arg Phe Ser Glu Asp Gly Tyr Arg Thr Val Val Gln
305                 310                 315                 320
Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu Phe Met Met Leu Tyr Phe
                325                 330                 335
Phe Ser Met Ala Ser Ser Ile Trp Trp Val Ile Leu Ser Leu Thr Trp
            340                 345                 350
Phe Leu Ala Ala Gly Met Lys Trp Gly His Glu Ala Ile Glu Ala Asn
        355                 360                 365
Ser Gln Tyr Phe His Leu Ala Ala Trp Ala Val Pro Ala Val Lys Thr
    370                 375                 380
Ile Thr Ile Leu Ala Met Gly Gln Ile Asp Gly Asp Leu Leu Ser Gly
385                 390                 395                 400
Val Cys Phe Val Gly Leu Asn Ser Leu Asp Pro Leu Arg Gly Phe Val
                405                 410                 415
Leu Ala Pro Leu Phe Val Tyr Leu Phe Ile Gly Thr Ser Phe Leu Leu
            420                 425                 430
Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Thr Ile Met Lys His Asp
        435                 440                 445
Gly Thr Lys Thr Glu Lys Leu Glu Arg Leu Met Val Arg Ile Gly Val
    450                 455                 460
Phe Ser Val Leu Tyr Thr Val Pro Ala Thr Ile Val Ile Ala Cys Tyr
465                 470                 475                 480
Phe Tyr Glu Gln Ala Phe Arg Glu His Trp Glu Arg Ser Trp Val Ser
                485                 490                 495
```

```
Gln His Cys Lys Ser Leu Ala Ile Pro Cys Pro Ala His Tyr Thr Pro
            500                 505                 510
Arg Met Ser Pro Asp Phe Thr Val Tyr Met Ile Lys Tyr Leu Met Thr
        515                 520                 525
Leu Ile Val Gly Ile Thr Ser Gly Phe Trp Ile Trp Ser Gly Lys Thr
    530                 535                 540
Leu His Ser Trp Arg Lys Phe Tyr Thr Arg Leu Thr Asn Ser Arg His
545                 550                 555                 560
Gly Glu Thr Thr Val
                565

<210> 47
<211> 666
<212> PRT
<213> Homo sapiens

<400> 47
Met Ala Met Thr Trp Ile Val Phe Ser Leu Trp Pro Leu Thr Val Phe
 1               5                  10                  15
Met Gly His Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
            20                  25                  30
Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
        35                  40                  45
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
    50                  55                  60
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
65                  70                  75                  80
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                85                  90                  95
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
            100                 105                 110
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
        115                 120                 125
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
    130                 135                 140
Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
145                 150                 155                 160
Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                165                 170                 175
Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
            180                 185                 190
Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala Arg Tyr Phe Ile Gly Leu
        195                 200                 205
Ile Ser Ile Ile Cys Leu Ser Ala Thr Leu Phe Thr Phe Leu Thr Phe
    210                 215                 220
Leu Ile Asp Val Thr Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe
225                 230                 235                 240
Tyr Ala Val Cys Tyr Met Met Val Ser Leu Ile Phe Phe Ile Gly Phe
                245                 250                 255
Leu Leu Glu Asp Arg Val Ala Cys Asn Ala Ser Ile Pro Ala Gln Tyr
            260                 265                 270
Lys Ala Ser Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met
        275                 280                 285
Leu Phe Met Ile Leu Tyr Phe Phe Thr Met Ala Gly Ser Val Trp Trp
    290                 295                 300
Val Ile Leu Thr Ile Thr Trp Phe Leu Ala Ala Val Pro Lys Trp Gly
305                 310                 315                 320
```

```
Ser Glu Ala Ile Glu Lys Lys Ala Leu Leu Phe His Ala Ser Ala Trp
                325                 330                 335
Gly Ile Pro Gly Thr Leu Thr Ile Ile Leu Leu Ala Met Asn Lys Ile
            340                 345                 350
Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Val
        355                 360                 365
Asp Ala Leu Arg Tyr Phe Val Leu Ala Pro Leu Cys Leu Tyr Val Val
    370                 375                 380
Val Gly Val Ser Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn Arg Val
385                 390                 395                 400
Arg Ile Glu Ile Pro Leu Glu Lys Glu Asn Gln Asp Lys Leu Val Lys
                405                 410                 415
Phe Met Ile Arg Ile Gly Val Phe Ser Ile Leu Tyr Leu Val Pro Leu
            420                 425                 430
Leu Val Val Ile Gly Cys Tyr Phe Tyr Glu Gln Ala Tyr Arg Gly Ile
        435                 440                 445
Trp Glu Thr Thr Trp Ile Gln Glu Arg Cys Arg Glu Tyr His Ile Pro
    450                 455                 460
Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro Asp Leu Ile Leu Phe
465                 470                 475                 480
Leu Met Lys Tyr Leu Met Ala Leu Ile Val Gly Ile Pro Ser Val Phe
                485                 490                 495
Trp Val Gly Ser Lys Lys Thr Cys Phe Glu Trp Ala Ser Phe Phe His
            500                 505                 510
Gly Arg Arg Lys Lys Glu Ile Val Asn Glu Ser Arg Gln Val Leu Gln
        515                 520                 525
Glu Pro Asp Phe Ala Gln Ser Leu Leu Arg Asp Pro Asn Thr Pro Ile
    530                 535                 540
Ile Arg Lys Ser Arg Gly Thr Ser Thr Gln Gly Thr Ser Thr His Ala
545                 550                 555                 560
Ser Ser Thr Gln Leu Ala Met Val Asp Asp Gln Arg Ser Lys Ala Gly
                565                 570                 575
Ser Ile His Ser Lys Val Ser Ser Tyr His Gly Ser Leu His Arg Ser
            580                 585                 590
Arg Asp Gly Arg Tyr Thr Pro Cys Ser Tyr Arg Gly Met Glu Glu Arg
        595                 600                 605
Leu Pro His Gly Ser Met Ser Arg Leu Thr Asp His Ser Arg His Ser
    610                 615                 620
Ser Ser His Arg Leu Asn Glu Gln Ser Arg His Ser Ser Ile Arg Asp
625                 630                 635                 640
Leu Ser Asn Asn Pro Met Thr His Ile Thr His Gly Thr Ser Met Asn
                645                 650                 655
Arg Val Ile Glu Glu Asp Gly Thr Ser Ala
            660                 665

<210> 48
<211> 666
<212> PRT
<213> Mouse

<400> 48
Met Ala Val Ser Trp Ile Val Phe Asp Leu Trp Leu Leu Thr Val Phe
 1               5                  10                  15
Leu Gly Gln Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
            20                  25                  30
Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
        35                  40                  45
```

```
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
    50                  55                  60
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
65                  70                  75                  80
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                85                  90                  95
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
            100                 105                 110
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
        115                 120                 125
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
    130                 135                 140
Leu Val Gly Asp Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
145                 150                 155                 160
Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                165                 170                 175
Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
            180                 185                 190
Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala Arg Tyr Phe Ile Gly Leu
        195                 200                 205
Ile Ser Ile Ile Cys Leu Ser Ala Thr Leu Phe Thr Phe Leu Thr Phe
    210                 215                 220
Leu Ile Asp Val Thr Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Phe
225                 230                 235                 240
Tyr Ala Val Cys Tyr Met Met Val Ser Leu Ile Phe Phe Ile Gly Phe
                245                 250                 255
Leu Leu Glu Asp Arg Val Ala Cys Asn Ala Ser Ser Pro Ala Gln Tyr
            260                 265                 270
Lys Ala Ser Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met
        275                 280                 285
Leu Phe Met Val Leu Tyr Phe Phe Thr Met Ala Gly Ser Val Trp Trp
    290                 295                 300
Val Ile Leu Thr Ile Thr Trp Phe Leu Ala Ala Val Pro Lys Trp Gly
305                 310                 315                 320
Ser Glu Ala Ile Glu Lys Lys Ala Leu Leu Phe His Ala Ser Ala Trp
                325                 330                 335
Gly Ile Pro Gly Thr Leu Thr Ile Ile Leu Leu Ala Met Asn Lys Ile
            340                 345                 350
Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Val
        355                 360                 365
Asp Ala Leu Arg Tyr Phe Val Leu Ala Pro Leu Cys Leu Tyr Val Val
    370                 375                 380
Val Gly Val Ser Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn Arg Val
385                 390                 395                 400
Arg Ile Glu Ile Pro Leu Glu Lys Glu Asn Gln Asp Lys Leu Val Lys
                405                 410                 415
Phe Met Ile Arg Ile Gly Val Phe Ser Ile Leu Tyr Leu Val Pro Leu
            420                 425                 430
Leu Val Val Ile Gly Cys Tyr Phe Tyr Glu Gln Ala Tyr Arg Gly Ile
        435                 440                 445
Trp Glu Thr Thr Trp Ile Gln Glu Arg Cys Arg Glu Tyr His Ile Pro
    450                 455                 460
Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro Asp Leu Ile Leu Phe
465                 470                 475                 480
Leu Met Lys Tyr Leu Met Ala Leu Ile Val Gly Ile Pro Ser Ile Phe
                485                 490                 495
Trp Val Gly Ser Lys Lys Thr Cys Phe Glu Trp Ala Ser Phe Phe His
```

```
            500                 505                 510
Gly Arg Arg Lys Lys Glu Ile Val Asn Glu Ser Arg Gln Val Leu Gln
        515                 520                 525
Glu Pro Asp Phe Ala Gln Ser Leu Leu Arg Asp Pro Asn Thr Pro Ile
    530                 535                 540
Ile Arg Lys Ser Arg Gly Thr Ser Thr Gln Gly Thr Ser Thr His Ala
545                 550                 555                 560
Ser Ser Thr Gln Leu Ala Met Val Asp Asp Gln Arg Ser Lys Ala Gly
                565                 570                 575
Ser Val His Ser Lys Val Ser Ser Tyr His Gly Ser Leu His Arg Ser
            580                 585                 590
Arg Asp Gly Arg Tyr Thr Pro Cys Ser Tyr Arg Gly Met Glu Glu Arg
        595                 600                 605
Leu Pro His Gly Ser Met Ser Arg Leu Thr Asp His Ser Arg His Ser
    610                 615                 620
Ser Ser His Arg Leu Asn Glu Gln Ser Arg His Ser Ser Ile Arg Asp
625                 630                 635                 640
Leu Ser Asn Asn Pro Met Thr His Ile Thr His Gly Thr Ser Met Asn
                645                 650                 655
Arg Val Ile Glu Glu Asp Gly Thr Ser Ala
            660                 665
```

<210> 49
<211> 537
<212> PRT
<213> Homo sapiens

<400> 49

```
Met Ala Trp Arg Gly Ala Gly Pro Ser Val Pro Gly Ala Pro Gly Gly
 1                5                  10                  15
Val Gly Leu Ser Leu Gly Leu Leu Leu Gln Leu Leu Leu Leu Leu Gly
            20                  25                  30
Pro Ala Arg Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
        35                  40                  45
Arg Ile Ser Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
    50                  55                  60
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
65                  70                  75                  80
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                85                  90                  95
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
            100                 105                 110
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
        115                 120                 125
Glu Pro Val Leu Lys Glu Phe Gly Phe Ala Trp Pro Glu Ser Leu Asn
    130                 135                 140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
145                 150                 155                 160
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                165                 170                 175
Pro Gly Glu Glu Cys His Ser Val Gly Thr Asn Ser Asp Gln Tyr Ile
            180                 185                 190
Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
        195                 200                 205
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr Asp Ile Trp Met Ala
    210                 215                 220
Val Trp Ala Ser Leu Cys Phe Ile Ser Thr Ala Phe Thr Val Leu Thr
```

225 230 235 240
Phe Leu Ile Asp Ser Ser Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile
245 250 255
Phe Leu Ser Met Cys Tyr Asn Ile Tyr Ser Ile Ala Tyr Ile Val Arg
260 265 270
Leu Thr Val Gly Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala
275 280 285
Glu Pro Val Leu Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile
290 295 300
Ile Phe Leu Leu Met Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp
305 310 315 320
Val Ile Leu Thr Leu Thr Trp Phe Leu Ala Ala Gly Leu Lys Trp Gly
325 330 335
His Glu Ala Ile Glu Met His Ser Ser Tyr Phe His Ile Ala Ala Trp
340 345 350
Ala Ile Pro Ala Val Lys Thr Ile Val Ile Leu Ile Met Arg Leu Val
355 360 365
Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn Gln Asn Leu
370 375 380
Asp Ala Leu Thr Gly Phe Val Val Ala Pro Leu Phe Thr Tyr Leu Val
385 390 395 400
Ile Gly Thr Leu Phe Ile Ala Ala Gly Leu Val Ala Leu Phe Lys Ile
405 410 415
Arg Ser Asn Leu Gln Lys Asp Gly Thr Lys Thr Asp Lys Leu Glu Arg
420 425 430
Leu Met Val Lys Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala
435 440 445
Thr Cys Val Ile Ala Cys Tyr Phe Tyr Glu Ile Ser Asn Trp Ala Leu
450 455 460
Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala Val Glu Met Leu Lys
465 470 475 480
Ile Phe Met Ser Leu Leu Val Gly Ile Thr Ser Gly Met Trp Ile Trp
485 490 495
Ser Ala Lys Thr Leu His Thr Trp Gln Lys Cys Ser Asn Arg Leu Val
500 505 510
Asn Ser Gly Lys Val Lys Arg Glu Lys Arg Gly Asn Gly Trp Val Lys
515 520 525
Pro Gly Lys Gly Ser Glu Thr Val Val
530 535

<210> 50
<211> 537
<212> PRT
<213> Mouse

<400> 50
Met Ala Trp Pro Gly Thr Gly Pro Ser Ser Arg Gly Ala Pro Gly Gly
1 5 10 15
Val Gly Leu Arg Leu Gly Leu Leu Leu Gln Phe Leu Leu Leu Leu Arg
20 25 30
Pro Thr Leu Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
35 40 45
Arg Ile Ala Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
50 55 60
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
65 70 75 80
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe

```
                85                  90                  95
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
            100                 105                 110
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
        115                 120                 125
Glu Pro Val Leu Arg Glu Phe Gly Phe Ala Trp Pro Asp Thr Leu Asn
    130                 135                 140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
145                 150                 155                 160
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                165                 170                 175
Pro Gly Glu Glu Cys His Ser Val Gly Ser Asn Ser Asp Gln Tyr Ile
            180                 185                 190
Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
        195                 200                 205
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr Asp Ile Trp Met Ala
    210                 215                 220
Val Trp Ala Ser Leu Cys Phe Ile Ser Thr Thr Phe Thr Val Leu Thr
225                 230                 235                 240
Phe Leu Ile Asp Ser Ser Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile
                245                 250                 255
Phe Leu Ser Met Cys Tyr Asn Ile Tyr Ser Ile Ala Tyr Ile Val Arg
            260                 265                 270
Leu Thr Val Gly Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala
        275                 280                 285
Glu Pro Val Leu Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile
    290                 295                 300
Ile Phe Leu Leu Met Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp
305                 310                 315                 320
Val Ile Leu Thr Leu Thr Trp Phe Leu Ala Ala Gly Leu Lys Trp Gly
                325                 330                 335
His Glu Ala Ile Glu Met His Ser Ser Tyr Phe His Ile Ala Ala Trp
            340                 345                 350
Ala Ile Pro Ala Val Lys Thr Ile Val Ile Leu Ile Met Arg Leu Val
        355                 360                 365
Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn Gln Asn Leu
    370                 375                 380
Asp Ala Leu Thr Gly Phe Val Val Ala Pro Leu Phe Thr Tyr Leu Val
385                 390                 395                 400
Ile Gly Thr Leu Phe Ile Ala Ala Gly Leu Val Ala Leu Phe Lys Ile
                405                 410                 415
Arg Ser Asn Leu Gln Lys Asp Gly Thr Lys Thr Asp Lys Leu Glu Arg
            420                 425                 430
Leu Met Val Lys Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala
        435                 440                 445
Thr Cys Val Ile Ala Cys Tyr Phe Tyr Glu Ile Ser Asn Trp Ala Leu
    450                 455                 460
Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala Val Glu Met Leu Lys
465                 470                 475                 480
Ile Phe Met Ser Leu Leu Val Gly Ile Thr Ser Gly Met Trp Ile Trp
                485                 490                 495
Ser Ala Lys Thr Leu His Thr Trp Gln Lys Cys Ser Asn Arg Leu Val
            500                 505                 510
Asn Ser Gly Lys Val Lys Arg Glu Lys Arg Gly Asn Gly Trp Val Lys
        515                 520                 525
Pro Gly Lys Gly Asn Glu Thr Val Val
    530                 535
```

<210> 51
<211> 585
<212> PRT
<213> Homo sapiens

<400> 51

```
Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu Leu
 1               5                  10                  15
Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val
            20                  25                  30
Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
        35                  40                  45
Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
    50                  55                  60
Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
65                  70                  75                  80
Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
                85                  90                  95
Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
            100                 105                 110
Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
        115                 120                 125
Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
    130                 135                 140
Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
145                 150                 155                 160
Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
                165                 170                 175
Ala Ser Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
            180                 185                 190
Arg Glu Pro Phe Val Pro Ile Leu Lys Glu Ser His Pro Leu Tyr Asn
        195                 200                 205
Lys Val Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys Tyr Gln
    210                 215                 220
Pro Ser Phe Ser Ala Asp Glu Arg Thr Phe Ala Thr Phe Trp Ile Gly
225                 230                 235                 240
Leu Trp Ser Val Leu Cys Phe Ile Ser Thr Ser Thr Thr Val Ala Thr
                245                 250                 255
Phe Leu Ile Asp Met Asp Thr Phe Arg Tyr Pro Glu Arg Pro Ile Ile
            260                 265                 270
Phe Leu Ser Ala Cys Tyr Leu Cys Val Ser Leu Gly Phe Leu Val Arg
        275                 280                 285
Leu Val Val Gly His Ala Ser Val Ala Cys Ser Arg Glu His Asn His
    290                 295                 300
Ile His Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Ile Val Phe Leu
305                 310                 315                 320
Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu
                325                 330                 335
Ser Leu Thr Trp Phe Leu Ala Ala Ala Met Lys Trp Gly Asn Glu Ala
            340                 345                 350
Ile Ala Gly Tyr Gly Gln Tyr Phe His Leu Ala Ala Trp Leu Ile Pro
        355                 360                 365
Ser Val Lys Ser Ile Thr Ala Leu Ala Leu Ser Ser Val Asp Gly Asp
    370                 375                 380
Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Asn Leu Asn Ser Leu
385                 390                 395                 400
```

```
Arg Arg Phe Val Leu Gly Pro Leu Val Leu Tyr Leu Leu Val Gly Thr
                405                 410                 415
Leu Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val
            420                 425                 430
Ile Lys Gln Gly Gly Thr Lys Thr Asp Lys Leu Glu Lys Leu Met Ile
        435                 440                 445
Arg Ile Gly Ile Phe Thr Leu Leu Tyr Thr Val Pro Ala Ser Ile Val
    450                 455                 460
Val Ala Cys Tyr Leu Tyr Glu Gln His Tyr Arg Glu Ser Trp Glu Ala
465                 470                 475                 480
Ala Leu Thr Cys Ala Cys Pro Gly His Asp Thr Gly Gln Pro Arg Ala
                485                 490                 495
Lys Pro Glu Tyr Trp Val Leu Met Leu Lys Tyr Phe Met Cys Leu Val
            500                 505                 510
Val Gly Ile Thr Ser Gly Val Trp Ile Trp Ser Gly Lys Thr Val Glu
        515                 520                 525
Ser Trp Arg Arg Phe Thr Ser Arg Cys Cys Cys Arg Pro Arg Arg Gly
    530                 535                 540
His Lys Ser Gly Gly Ala Met Ala Ala Gly Asp Tyr Pro Glu Ala Ser
545                 550                 555                 560
Ala Ala Leu Thr Gly Arg Thr Gly Pro Pro Gly Pro Ala Ala Thr Tyr
                565                 570                 575
His Lys Gln Val Ser Leu Ser His Val
            580                 585
```

<210> 52
<211> 706
<212> PRT
<213> Homo sapiens

<400> 52

```
Met Glu Met Phe Thr Phe Leu Leu Thr Cys Ile Phe Leu Pro Leu Leu
 1               5                  10                  15
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
            20                  25                  30
Met Lys Met Ala Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
        35                  40                  45
Tyr Asp Gln Ser Ile Ala Ala Val Glu Met Glu His Phe Leu Pro Leu
    50                  55                  60
Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Thr Phe Leu Cys Lys Ala
65                  70                  75                  80
Phe Val Pro Thr Cys Ile Glu Gln Ile His Val Val Pro Pro Cys Arg
                85                  90                  95
Lys Leu Cys Glu Lys Val Tyr Ser Asp Cys Lys Lys Leu Ile Asp Thr
            100                 105                 110
Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asp Arg Leu Gln Tyr
        115                 120                 125
Cys Asp Glu Thr Val Pro Val Thr Phe Asp Pro His Thr Glu Phe Leu
    130                 135                 140
Gly Pro Gln Lys Lys Thr Glu Gln Val Gln Arg Asp Ile Gly Phe Trp
145                 150                 155                 160
Cys Pro Arg His Leu Lys Thr Ser Gly Gly Gln Gly Tyr Lys Phe Leu
                165                 170                 175
Gly Ile Asp Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
            180                 185                 190
Asp Glu Leu Glu Phe Ala Lys Ser Phe Ile Gly Thr Val Ser Ile Phe
        195                 200                 205
```

```
Cys Leu Cys Ala Thr Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val
    210                 215                 220
Arg Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Tyr Tyr Ser Val Cys
225                 230                 235                 240
Tyr Ser Ile Val Ser Leu Met Tyr Phe Ile Gly Phe Leu Leu Gly Asp
                245                 250                 255
Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp Thr
            260                 265                 270
Val Val Leu Gly Ser Gln Asn Lys Ala Cys Thr Val Leu Phe Met Leu
        275                 280                 285
Leu Tyr Phe Phe Thr Met Ala Gly Thr Val Trp Trp Val Ile Leu Thr
    290                 295                 300
Ile Thr Trp Phe Leu Ala Ala Gly Arg Lys Trp Ser Cys Glu Ala Ile
305                 310                 315                 320
Glu Gln Lys Ala Val Trp Phe His Ala Val Ala Trp Gly Thr Pro Gly
                325                 330                 335
Phe Leu Thr Val Met Leu Leu Ala Met Asn Lys Val Glu Gly Asp Asn
            340                 345                 350
Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Leu Asp Ala Ser Arg
        355                 360                 365
Tyr Phe Val Leu Leu Pro Leu Cys Leu Cys Val Phe Val Gly Leu Ser
    370                 375                 380
Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn His Val Arg Gln Val Ile
385                 390                 395                 400
Gln His Asp Gly Arg Asn Gln Glu Lys Leu Lys Lys Phe Met Ile Arg
                405                 410                 415
Ile Gly Val Phe Ser Gly Leu Tyr Leu Val Pro Leu Val Thr Leu Leu
            420                 425                 430
Gly Cys Tyr Val Tyr Glu Gln Val Asn Arg Ile Thr Trp Glu Ile Thr
        435                 440                 445
Trp Val Ser Asp His Cys Arg Gln Tyr His Ile Pro Cys Pro Tyr Gln
    450                 455                 460
Ala Lys Ala Lys Ala Arg Pro Glu Leu Ala Leu Phe Met Ile Lys Tyr
465                 470                 475                 480
Leu Met Thr Leu Ile Val Gly Ile Ser Ala Val Phe Trp Val Gly Ser
                485                 490                 495
Lys Lys Thr Cys Thr Glu Trp Ala Gly Phe Phe Lys Arg Asn Arg Lys
            500                 505                 510
Arg Asp Pro Ile Ser Glu Ser Arg Arg Val Leu Gln Glu Ser Cys Glu
        515                 520                 525
Phe Phe Leu Lys His Asn Ser Lys Val Lys His Lys Lys Lys His Tyr
    530                 535                 540
Lys Pro Ser Ser His Lys Leu Lys Val Ile Ser Lys Ser Met Gly Thr
545                 550                 555                 560
Ser Thr Gly Ala Thr Ala Asn His Gly Thr Ser Ala Val Ala Ile Thr
                565                 570                 575
Ser His Asp Tyr Leu Gly Gln Glu Thr Leu Thr Glu Ile Gln Thr Ser
            580                 585                 590
Pro Glu Thr Ser Met Arg Glu Val Lys Ala Asp Gly Ala Ser Thr Pro
        595                 600                 605
Arg Leu Arg Glu Gln Asp Cys Gly Glu Pro Ala Ser Pro Ala Ala Ser
    610                 615                 620
Ile Ser Arg Leu Ser Gly Glu Gln Val Asp Gly Lys Gly Gln Ala Gly
625                 630                 635                 640
Ser Val Ser Glu Ser Ala Arg Ser Glu Gly Arg Ile Ser Pro Lys Ser
                645                 650                 655
Asp Ile Thr Asp Thr Gly Leu Ala Gln Ser Asn Asn Leu Gln Val Pro
```

```
            660                 665                 670
Ser Ser Ser Glu Pro Ser Ser Leu Lys Gly Ser Thr Ser Leu Leu Val
        675                 680                 685
His Pro Val Ser Gly Val Arg Lys Glu Gln Gly Gly Gly Cys His Ser
    690                 695                 700
Asp Thr
705

<210> 53
<211> 709
<212> PRT
<213> Mouse

<400> 53
Met Glu Arg Ser Pro Phe Leu Leu Ala Cys Ile Leu Leu Pro Leu Val
 1               5                  10                  15
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
            20                  25                  30
Met Lys Met Thr Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
        35                  40                  45
Tyr Asp Gln Gly Ile Ala Ala Val Glu Met Gly His Phe Leu His Leu
    50                  55                  60
Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Met Phe Leu Cys Gln Ala
65                  70                  75                  80
Phe Ile Pro Thr Cys Thr Glu Gln Ile His Val Val Leu Pro Cys Arg
                85                  90                  95
Lys Leu Cys Glu Lys Ile Val Ser Asp Cys Lys Lys Leu Met Asp Thr
            100                 105                 110
Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asn Arg Leu Pro His
        115                 120                 125
Cys Asp Asp Thr Val Pro Val Thr Ser His Pro His Thr Glu Leu Ser
    130                 135                 140
Gly Pro Gln Lys Lys Ser Asp Gln Val Pro Arg Asp Ile Gly Phe Trp
145                 150                 155                 160
Cys Pro Lys His Leu Arg Thr Ser Gly Asp Gln Gly Tyr Arg Phe Leu
                165                 170                 175
Gly Ile Glu Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
            180                 185                 190
Asp Glu Leu Asp Phe Ala Lys Ser Phe Ile Gly Ile Val Ser Ile Phe
        195                 200                 205
Cys Leu Cys Ala Thr Leu Phe Thr Phe Leu Thr Phe Leu Ile Asp Val
    210                 215                 220
Arg Arg Phe Arg Tyr Pro Glu Arg Pro Ile Ile Tyr Tyr Ser Val Cys
225                 230                 235                 240
Tyr Ser Ile Val Ser Leu Met Tyr Phe Val Gly Phe Leu Leu Gly Asn
                245                 250                 255
Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp Thr
            260                 265                 270
Val Val Leu Gly Ser Lys Asn Lys Ala Cys Ser Val Val Phe Met Phe
        275                 280                 285
Leu Tyr Phe Phe Thr Met Ala Gly Thr Val Trp Trp Val Ile Leu Thr
    290                 295                 300
Ile Thr Trp Phe Leu Ala Ala Gly Arg Lys Trp Ser Cys Glu Ala Ile
305                 310                 315                 320
Glu Gln Lys Ala Val Trp Phe His Ala Val Ala Trp Gly Ala Pro Gly
                325                 330                 335
Phe Leu Thr Val Met Leu Leu Ala Met Asn Lys Val Glu Gly Asp Asn
```

```
            340                 345                 350
Ile Ser Gly Val Cys Phe Val Gly Leu Tyr Asp Leu Asp Ala Ser Arg
        355                 360                 365
Tyr Phe Val Leu Leu Pro Leu Cys Leu Cys Val Phe Val Gly Leu Ser
    370                 375                 380
Leu Leu Leu Ala Gly Ile Ile Ser Leu Asn His Val Arg Gln Val Ile
385                 390                 395                 400
Gln His Asp Gly Arg Asn Gln Glu Lys Leu Lys Lys Phe Met Ile Arg
                405                 410                 415
Ile Gly Val Phe Ser Gly Leu Tyr Leu Val Pro Leu Val Thr Leu Leu
            420                 425                 430
Gly Cys Tyr Val Tyr Glu Leu Val Asn Arg Ile Thr Trp Glu Met Thr
        435                 440                 445
Trp Phe Ser Asp His Cys His Gln Tyr Arg Ile Pro Cys Pro Tyr Gln
    450                 455                 460
Ala Asn Pro Lys Ala Arg Pro Glu Leu Ala Leu Phe Met Ile Lys Tyr
465                 470                 475                 480
Leu Met Thr Leu Ile Val Gly Ile Ser Ala Val Phe Trp Val Gly Ser
                485                 490                 495
Lys Lys Thr Cys Thr Glu Trp Ala Gly Phe Phe Lys Arg Asn Arg Lys
            500                 505                 510
Arg Asp Pro Ile Ser Glu Ser Arg Arg Val Leu Gln Glu Ser Cys Glu
        515                 520                 525
Phe Phe Leu Lys His Asn Ser Lys Val Lys His Lys Lys Lys His Gly
    530                 535                 540
Ala Pro Gly Pro His Arg Leu Lys Val Ile Ser Lys Ser Met Gly Thr
545                 550                 555                 560
Ser Thr Gly Ala Thr Thr Asn His Gly Thr Ser Ala Met Ala Ile Ala
                565                 570                 575
Asp His Asp Tyr Leu Gly Gln Glu Thr Ser Thr Glu Val His Thr Ser
            580                 585                 590
Pro Glu Ala Ser Val Lys Glu Gly Arg Ala Asp Arg Ala Asn Thr Pro
        595                 600                 605
Ser Ala Lys Asp Arg Asp Cys Gly Glu Ser Ala Gly Pro Ser Ser Lys
    610                 615                 620
Leu Ser Gly Asn Arg Asn Gly Arg Glu Ser Arg Ala Gly Gly Leu Lys
625                 630                 635                 640
Glu Arg Ser Asn Gly Ser Glu Gly Ala Pro Ser Glu Gly Arg Val Ser
                645                 650                 655
Pro Lys Ser Ser Val Pro Glu Thr Gly Leu Ile Asp Cys Ser Thr Ser
            660                 665                 670
Gln Ala Ala Ser Ser Pro Glu Pro Thr Ser Leu Lys Gly Ser Thr Ser
        675                 680                 685
Leu Pro Val His Ser Ala Ser Arg Ala Arg Lys Glu Gln Gly Ala Gly
    690                 695                 700
Ser His Ser Asp Ala
705

<210> 54
<211> 574
<212> PRT
<213> Homo sapiens

<400> 54
Met Arg Asp Pro Gly Ala Ala Ala Pro Leu Ser Ser Leu Gly Leu Cys
 1               5                  10                  15
Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Ser Ala Gly Ala Gly Ala
```

```
            20                  25                  30
Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
        35                  40                  45
Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
    50                  55                  60
Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
65                  70                  75                  80
Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
                85                  90                  95
Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
            100                 105                 110
Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
        115                 120                 125
Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
    130                 135                 140
Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
145                 150                 155                 160
Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Gly Pro
                165                 170                 175
Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala
            180                 185                 190
Leu Pro Pro Gly Ala Ser Asp Gly Arg Gly Arg Pro Ala Phe Pro Phe
        195                 200                 205
Ser Cys Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe
    210                 215                 220
Leu Gly Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn
225                 230                 235                 240
Gly Leu Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala Arg Leu Trp
                245                 250                 255
Val Gly Val Trp Ser Val Leu Cys Cys Ala Ser Thr Leu Phe Thr Val
            260                 265                 270
Leu Thr Tyr Leu Val Asp Met Arg Arg Phe Ser Tyr Pro Glu Arg Pro
        275                 280                 285
Ile Ile Phe Leu Ser Gly Cys Tyr Phe Met Val Ala Val Ala His Val
    290                 295                 300
Ala Gly Phe Leu Leu Glu Asp Arg Ala Val Cys Val Glu Arg Phe Ser
305                 310                 315                 320
Asp Asp Gly Tyr Arg Thr Val Ala Gln Gly Thr Lys Lys Glu Gly Cys
                325                 330                 335
Thr Ile Leu Phe Met Val Leu Tyr Phe Phe Gly Met Ala Ser Ser Ile
            340                 345                 350
Trp Trp Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys
        355                 360                 365
Trp Gly His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala
    370                 375                 380
Ala Trp Ala Val Pro Ala Val Lys Thr Ile Thr Ile Leu Ala Met Gly
385                 390                 395                 400
Gln Val Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu Ser
                405                 410                 415
Ser Val Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr
            420                 425                 430
Leu Phe Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe
        435                 440                 445
Arg Ile Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu
    450                 455                 460
Glu Lys Leu Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val
465                 470                 475                 480
```

```
Pro Ala Thr Ile Val Leu Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg
                485                 490                 495
Glu His Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys Ser Tyr Ala
            500                 505                 510
Val Pro Cys Pro Pro Gly His Phe Pro Pro Met Ser Pro Asp Phe Thr
        515                 520                 525
Val Phe Met Ile Lys Tyr Leu Met Thr Met Ile Val Gly Ile Thr Thr
    530                 535                 540
Gly Phe Trp Ile Trp Ser Gly Lys Thr Leu Gln Ser Trp Arg Arg Phe
545                 550                 555                 560
Tyr His Arg Leu Ser His Ser Ser Lys Gly Glu Thr Ala Val
                565                 570

<210> 55
<211> 572
<212> PRT
<213> Mouse

<400> 55
Met Arg Gly Pro Gly Thr Ala Ala Ser His Ser Pro Leu Gly Leu Cys
 1               5                  10                  15
Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Pro Thr Asp Thr Arg Ala
            20                  25                  30
Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
        35                  40                  45
Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
    50                  55                  60
Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
65                  70                  75                  80
Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
                85                  90                  95
Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
            100                 105                 110
Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
        115                 120                 125
Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
    130                 135                 140
Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
145                 150                 155                 160
Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Ala Gly Gly Ser Pro
                165                 170                 175
Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Pro Pro Phe Thr Ala
            180                 185                 190
Met Ser Pro Ser Asp Gly Arg Gly Arg Leu Ser Phe Pro Phe Ser Cys
        195                 200                 205
Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe Leu Gly
    210                 215                 220
Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn Gly Leu
225                 230                 235                 240
Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala Arg Leu Trp Val Gly
                245                 250                 255
Val Trp Ser Val Leu Ser Cys Ala Ser Thr Leu Phe Thr Val Leu Thr
            260                 265                 270
Tyr Leu Val Asp Met Arg Arg Phe Ser Tyr Pro Glu Arg Pro Ile Ile
        275                 280                 285
Phe Leu Ser Gly Cys Tyr Phe Met Val Ala Val Ala His Val Ala Gly
    290                 295                 300
```

```
Phe Leu Leu Glu Asp Arg Ala Val Cys Val Glu Arg Phe Ser Asp Asp
305                 310                 315                 320
Gly Tyr Arg Thr Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile
                325                 330                 335
Leu Phe Met Val Leu Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp
            340                 345                 350
Val Ile Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly
        355                 360                 365
His Glu Ala Ile Glu Ala Asn Ser Gln Tyr Phe His Leu Ala Ala Trp
    370                 375                 380
Ala Val Pro Ala Val Lys Thr Ile Thr Ile Leu Ala Met Gly Gln Val
385                 390                 395                 400
Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu Ser Ser Val
                405                 410                 415
Asp Ala Leu Arg Gly Phe Val Leu Ala Pro Leu Phe Val Tyr Leu Phe
            420                 425                 430
Ile Gly Thr Ser Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile
        435                 440                 445
Arg Thr Ile Met Lys His Asp Gly Thr Lys Thr Glu Lys Leu Glu Lys
    450                 455                 460
Leu Met Val Arg Ile Gly Val Phe Ser Val Leu Tyr Thr Val Pro Ala
465                 470                 475                 480
Thr Ile Val Leu Ala Cys Tyr Phe Tyr Glu Gln Ala Phe Arg Glu His
                485                 490                 495
Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys Ser Tyr Ala Val Pro
            500                 505                 510
Cys Pro Pro Arg His Phe Ser Pro Met Ser Pro Asp Phe Thr Val Phe
        515                 520                 525
Met Ile Lys Tyr Leu Met Thr Met Ile Val Gly Ile Thr Thr Gly Phe
    530                 535                 540
Trp Ile Trp Ser Gly Lys Thr Leu Gln Ser Trp Arg Arg Phe Tyr His
545                 550                 555                 560
Arg Leu Ser His Ser Ser Lys Gly Glu Thr Ala Val
                565                 570
```

<210> 56
<211> 694
<212> PRT
<213> Homo sapiens

<400> 56

```
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
 1                5                  10                  15
Ala Leu Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
            20                  25                  30
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
        35                  40                  45
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
    50                  55                  60
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
65                  70                  75                  80
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
                85                  90                  95
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
            100                 105                 110
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
        115                 120                 125
```

```
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
    130                 135                 140
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
145                 150                 155                 160
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Gly Glu Gln Pro
                165                 170                 175
Pro Ser Gly Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His
            180                 185                 190
Arg Gly Gly Gly Arg Gly Gly Gly Gly Gly Asp Ala Ala Ala Pro Pro
        195                 200                 205
Ala Arg Gly Gly Gly Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly
    210                 215                 220
Ala Ala Pro Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser
225                 230                 235                 240
Val Ser Ser Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln
                245                 250                 255
Ile Ala Asn Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp
            260                 265                 270
Glu Arg Ala Phe Thr Val Phe Trp Ile Gly Leu Trp Ser Val Leu Cys
        275                 280                 285
Phe Val Ser Thr Phe Ala Thr Val Ser Thr Phe Leu Ile Asp Met Glu
    290                 295                 300
Arg Phe Lys Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Ala Cys Tyr
305                 310                 315                 320
Leu Phe Val Ser Val Gly Tyr Leu Val Arg Leu Val Ala Gly His Glu
                325                 330                 335
Lys Val Ala Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Ala Gly Gly
            340                 345                 350
Ala Gly Gly Ala Ala Ala Gly Ala Gly Ala Ala Gly Ala Gly Ala Gly
        355                 360                 365
Gly Pro Gly Gly Arg Gly Glu Tyr Glu Glu Leu Gly Ala Val Glu Gln
    370                 375                 380
His Val Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Val Val Phe
385                 390                 395                 400
Leu Leu Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile
                405                 410                 415
Leu Ser Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly Asn Glu
            420                 425                 430
Ala Ile Ala Gly Tyr Ser Gln Tyr Phe His Leu Ala Ala Trp Leu Val
        435                 440                 445
Pro Ser Val Lys Ser Ile Ala Val Leu Ala Leu Ser Ser Val Asp Gly
    450                 455                 460
Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Ser Leu Asp Asn
465                 470                 475                 480
Leu Arg Gly Phe Val Leu Ala Pro Leu Val Ile Tyr Leu Phe Ile Gly
                485                 490                 495
Thr Met Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser
            500                 505                 510
Val Ile Lys Gln Gln Asp Gly Pro Thr Lys Thr His Lys Leu Glu Lys
        515                 520                 525
Leu Met Ile Arg Leu Gly Leu Phe Thr Val Leu Tyr Thr Val Pro Ala
    530                 535                 540
Ala Val Val Val Ala Cys Leu Phe Tyr Glu Gln His Asn Arg Pro Arg
545                 550                 555                 560
Trp Glu Ala Thr His Asn Cys Pro Cys Leu Arg Asp Leu Gln Pro Asp
                565                 570                 575
Gln Ala Arg Arg Pro Asp Tyr Ala Val Phe Met Leu Lys Tyr Phe Met
```

```
            580                 585                 590
Cys Leu Val Val Gly Ile Thr Ser Gly Val Trp Val Trp Ser Gly Lys
        595                 600                 605
Thr Leu Glu Ser Trp Arg Ser Leu Cys Thr Arg Cys Cys Trp Ala Ser
    610                 615                 620
Lys Gly Ala Ala Val Gly Gly Gly Ala Gly Ala Thr Ala Ala Gly Gly
625                 630                 635                 640
Gly Gly Gly Pro Gly Gly Gly Gly Gly Gly Gly Pro Gly Gly Gly Gly
                645                 650                 655
Gly Pro Gly Gly Gly Gly Gly Ser Leu Tyr Ser Asp Val Ser Thr Gly
            660                 665                 670
Leu Thr Trp Arg Ser Gly Thr Ala Ser Ser Val Ser Tyr Pro Lys Gln
        675                 680                 685
Met Pro Leu Ser Gln Val
    690
```

<210> 57
<211> 685
<212> PRT
<213> Mouse

<400> 57

```
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
 1               5                  10                  15
Ala Val Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
            20                  25                  30
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
        35                  40                  45
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
    50                  55                  60
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
65                  70                  75                  80
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
                85                  90                  95
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
            100                 105                 110
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
        115                 120                 125
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
    130                 135                 140
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
145                 150                 155                 160
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Pro Gly Glu Gln
                165                 170                 175
Pro Pro Ser Gly Ser Gly His Ser Arg Pro Pro Gly Ala Arg Pro Pro
            180                 185                 190
His Arg Gly Gly Ser Ser Arg Gly Ser Gly Asp Ala Ala Ala Ala Pro
        195                 200                 205
Pro Ser Arg Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly Ala Ala Pro
    210                 215                 220
Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser Val Ser Ser
225                 230                 235                 240
Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln Ile Ala Asn
                245                 250                 255
Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp Glu Arg Ala
            260                 265                 270
Phe Thr Val Phe Trp Ile Gly Leu Trp Ser Val Leu Cys Phe Val Ser
```

```
        275                 280                 285
Thr Phe Ala Thr Val Ser Thr Phe Leu Ile Asp Met Glu Arg Phe Lys
    290                 295                 300
Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Ala Cys Tyr Leu Phe Val
305                 310                 315                 320
Ser Val Gly Tyr Leu Val Arg Leu Val Ala Gly His Glu Lys Val Ala
                325                 330                 335
Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Arg Gly Gly Ala Gly Gly
            340                 345                 350
Ala Ala Ala Ala Gly Ala Gly Ala Ala Gly Arg Gly Ala Ser Ser Pro
        355                 360                 365
Gly Ala Arg Gly Glu Tyr Glu Glu Leu Gly Ala Val Glu Gln His Val
    370                 375                 380
Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Val Val Phe Leu Leu
385                 390                 395                 400
Val Tyr Phe Phe Gly Met Ala Ser Ser Ile Trp Trp Val Ile Leu Ser
                405                 410                 415
Leu Thr Trp Phe Leu Ala Ala Gly Met Lys Trp Gly Asn Glu Ala Ile
            420                 425                 430
Ala Gly Tyr Ser Gln Tyr Phe His Leu Ala Ala Trp Leu Val Pro Ser
        435                 440                 445
Val Lys Ser Ile Ala Val Leu Ala Leu Ser Ser Val Asp Gly Asp Pro
    450                 455                 460
Val Ala Gly Ile Cys Tyr Val Gly Asn Gln Ser Leu Asp Asn Leu Arg
465                 470                 475                 480
Gly Phe Val Leu Ala Pro Leu Val Ile Tyr Leu Phe Ile Gly Thr Met
                485                 490                 495
Phe Leu Leu Ala Gly Phe Val Ser Leu Phe Arg Ile Arg Ser Val Ile
            500                 505                 510
Lys Gln Gln Gly Gly Pro Thr Lys Thr His Lys Leu Glu Lys Leu Met
        515                 520                 525
Ile Arg Leu Gly Leu Phe Thr Val Leu Tyr Thr Val Pro Ala Ala Val
    530                 535                 540
Val Val Ala Cys Leu Phe Tyr Glu Gln His Asn Arg Pro Arg Trp Glu
545                 550                 555                 560
Ala Thr His Asn Cys Pro Cys Leu Arg Asp Leu Gln Pro Asp Gln Ala
                565                 570                 575
Arg Arg Pro Asp Tyr Ala Val Phe Met Leu Lys Tyr Phe Met Cys Leu
            580                 585                 590
Val Val Gly Ile Thr Ser Gly Val Trp Val Trp Ser Gly Lys Thr Leu
        595                 600                 605
Glu Ser Trp Arg Ala Leu Cys Thr Arg Cys Cys Trp Ala Ser Lys Gly
    610                 615                 620
Ala Ala Val Gly Ala Gly Ala Gly Gly Ser Gly Pro Gly Gly Ser Gly
625                 630                 635                 640
Pro Gly Pro Gly Gly Gly Gly Gly His Gly Gly Gly Gly Gly Ser Leu
                645                 650                 655
Tyr Ser Asp Val Ser Thr Gly Leu Thr Trp Arg Ser Gly Thr Ala Ser
            660                 665                 670
Ser Val Ser Tyr Pro Lys Gln Met Pro Leu Ser Gln Val
        675                 680                 685
```

<210> 58
<211> 591
<212> PRT
<213> Homo sapiens

<400> 58

```
Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu Leu
 1               5                  10                  15
Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg
            20                  25                  30
Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg
        35                  40                  45
Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr
    50                  55                  60
Ser Gln Gly Glu Ala Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val
65                  70                  75                  80
Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr
                85                  90                  95
Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg
            100                 105                 110
Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln
        115                 120                 125
Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr
    130                 135                 140
Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr
145                 150                 155                 160
Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
                165                 170                 175
Pro Arg Pro Ala Arg Pro Pro Gly Asp Leu Gly Pro Gly Ala Gly Gly
            180                 185                 190
Ser Gly Thr Cys Glu Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser
        195                 200                 205
Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser
    210                 215                 220
Arg Arg Asp Lys Asp Phe Ala Leu Val Trp Met Ala Val Trp Ser Ala
225                 230                 235                 240
Leu Cys Phe Phe Ser Thr Ala Phe Thr Val Leu Thr Phe Leu Leu Glu
                245                 250                 255
Pro His Arg Phe Gln Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met
            260                 265                 270
Cys Tyr Asn Val Tyr Ser Leu Ala Phe Leu Ile Arg Ala Val Ala Gly
        275                 280                 285
Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
    290                 295                 300
Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val Phe Leu Leu Leu
305                 310                 315                 320
Tyr Tyr Phe Gly Met Ala Ser Ser Leu Trp Trp Val Val Leu Thr Leu
                325                 330                 335
Thr Trp Phe Leu Ala Ala Gly Lys Lys Trp Gly His Glu Ala Ile Glu
            340                 345                 350
Ala His Gly Ser Tyr Phe His Met Ala Ala Trp Gly Leu Pro Ala Leu
        355                 360                 365
Lys Thr Ile Val Ile Leu Thr Leu Arg Lys Val Ala Gly Asp Glu Leu
    370                 375                 380
Thr Gly Leu Cys Tyr Val Ala Ser Thr Asp Ala Ala Ala Leu Thr Gly
385                 390                 395                 400
Phe Val Leu Val Pro Leu Ser Gly Tyr Leu Val Leu Gly Ser Ser Phe
                405                 410                 415
Leu Leu Thr Gly Phe Val Ala Leu Phe His Ile Arg Lys Ile Met Lys
            420                 425                 430
Thr Gly Gly Thr Asn Thr Glu Lys Leu Glu Lys Leu Met Val Lys Ile
        435                 440                 445
```

```
Gly Val Phe Ser Ile Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Val
    450                 455                 460
Cys Tyr Val Tyr Glu Arg Leu Asn Met Asp Phe Trp Arg Leu Arg Ala
465                 470                 475                 480
Thr Glu Gln Pro Cys Ala Ala Ala Ala Gly Pro Gly Gly Arg Arg Asp
                485                 490                 495
Cys Ser Leu Pro Gly Gly Ser Val Pro Thr Val Ala Val Phe Met Leu
            500                 505                 510
Lys Ile Phe Met Ser Leu Val Val Gly Ile Thr Ser Gly Val Trp Val
        515                 520                 525
Trp Ser Ser Lys Thr Phe Gln Thr Trp Gln Ser Leu Cys Tyr Arg Lys
    530                 535                 540
Ile Ala Ala Gly Arg Ala Arg Ala Lys Ala Cys Arg Ala Pro Gly Ser
545                 550                 555                 560
Tyr Gly Arg Gly Thr His Cys His Tyr Lys Ala Pro Thr Val Val Leu
                565                 570                 575
His Met Thr Lys Thr Asp Pro Ser Leu Glu Asn Pro Thr His Leu
            580                 585                 590
```

<210> 59
<211> 591
<212> PRT
<213> Mouse

<400> 59

```
Met Ala Val Pro Pro Leu Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu
 1               5                  10                  15
Leu Ala Thr Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu
            20                  25                  30
Arg Gly Arg Gly Pro Ala Pro Cys Gln Ala Met Glu Ile Pro Met Cys
        35                  40                  45
Arg Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His
    50                  55                  60
Thr Ser Gln Gly Glu Ala Ala Ala Gln Leu Ala Glu Phe Ser Pro Leu
65                  70                  75                  80
Val Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu
                85                  90                  95
Tyr Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys
            100                 105                 110
Arg Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu
        115                 120                 125
Gln Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro
    130                 135                 140
Thr Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Thr
145                 150                 155                 160
Ala Gly Pro Thr Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
                165                 170                 175
Pro Arg Pro Ala Arg Pro Pro Gly Asp Ser Ala Pro Gly Pro Gly Ser
            180                 185                 190
Gly Gly Thr Cys Asp Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser
        195                 200                 205
Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser
    210                 215                 220
Arg Arg Asp Lys Asp Phe Ala Leu Val Trp Met Ala Val Trp Ser Ala
225                 230                 235                 240
Leu Cys Phe Phe Ser Thr Ala Phe Thr Val Phe Thr Phe Leu Leu Glu
                245                 250                 255
```

```
Pro His Arg Phe Gln Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met
            260                 265                 270
Cys Tyr Asn Val Tyr Ser Leu Ala Phe Leu Ile Arg Ala Val Ala Gly
        275                 280                 285
Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
    290                 295                 300
Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val Phe Leu Leu Leu
305                 310                 315                 320
Tyr Tyr Phe Gly Met Ala Ser Ser Leu Trp Trp Val Val Leu Thr Leu
                325                 330                 335
Thr Trp Phe Leu Ala Ala Gly Lys Lys Trp Gly His Glu Ala Ile Glu
            340                 345                 350
Ala His Gly Ser Tyr Phe His Met Ala Ala Trp Gly Leu Pro Ala Leu
        355                 360                 365
Lys Thr Ile Val Val Leu Thr Leu Arg Lys Val Ala Gly Asp Glu Leu
    370                 375                 380
Thr Gly Leu Cys Tyr Val Ala Ser Met Asp Pro Ala Ala Leu Thr Gly
385                 390                 395                 400
Phe Val Leu Val Pro Leu Ser Cys Tyr Leu Val Leu Gly Thr Ser Phe
                405                 410                 415
Leu Leu Thr Gly Phe Val Ala Leu Phe His Ile Arg Lys Ile Met Lys
            420                 425                 430
Thr Gly Gly Thr Asn Thr Glu Lys Leu Glu Lys Leu Met Val Lys Ile
        435                 440                 445
Gly Val Phe Ser Ile Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Val
    450                 455                 460
Cys Tyr Val Tyr Glu Arg Leu Asn Met Asp Phe Trp Arg Leu Arg Ala
465                 470                 475                 480
Thr Glu Gln Pro Cys Thr Ala Ala Thr Val Pro Gly Gly Arg Arg Asp
                485                 490                 495
Cys Ser Leu Pro Gly Gly Ser Val Pro Thr Val Ala Val Phe Met Leu
            500                 505                 510
Lys Ile Phe Met Ser Leu Val Val Gly Ile Thr Ser Gly Val Trp Val
        515                 520                 525
Trp Ser Ser Lys Thr Phe Gln Thr Trp Gln Ser Leu Cys Tyr Arg Lys
    530                 535                 540
Met Ala Ala Gly Arg Ala Arg Ala Lys Ala Cys Arg Thr Pro Gly Gly
545                 550                 555                 560
Tyr Gly Arg Gly Thr His Cys His Tyr Lys Ala Pro Thr Val Val Leu
                565                 570                 575
His Met Thr Lys Thr Asp Pro Ser Leu Glu Asn Pro Thr His Leu
            580                 585                 590

<210> 60
<211> 581
<212> PRT
<213> Homo sapiens

<220>
<221> Variant
<222> (464)
<223> Xaa = any amino acid

<400> 60
Met Gln Arg Pro Gly Pro Arg Leu Trp Leu Val Leu Gln Val Met Gly
 1               5                  10                  15
Ser Cys Ala Ala Ile Ser Ser Met Asp Met Glu Arg Pro Gly Asp Gly
```

```
            20                  25                  30
Lys Cys Gln Pro Ile Glu Ile Pro Met Cys Lys Asp Ile Gly Tyr Asn
        35                  40                  45
Met Thr Arg Met Pro Asn Leu Met Gly His Glu Asn Gln Arg Glu Ala
    50                  55                  60
Ala Ile Gln Leu His Glu Phe Ala Pro Leu Val Glu Tyr Gly Cys His
65                  70                  75                  80
Gly His Leu Arg Phe Phe Leu Cys Ser Leu Tyr Ala Pro Met Cys Thr
                85                  90                  95
Glu Gln Val Ser Thr Pro Ile Pro Ala Cys Arg Val Met Cys Glu Gln
            100                 105                 110
Ala Arg Leu Lys Cys Ser Pro Ile Met Glu Gln Phe Asn Phe Lys Trp
        115                 120                 125
Pro Asp Ser Leu Asp Cys Arg Lys Leu Pro Asn Lys Asn Asp Pro Asn
    130                 135                 140
Tyr Leu Cys Met Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr Arg
145                 150                 155                 160
Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His Ser
                165                 170                 175
Ala Gln Glu His Pro Leu Lys Asp Gly Gly Pro Gly Arg Gly Gly Cys
            180                 185                 190
Asp Asn Pro Gly Lys Phe His His Val Glu Lys Ser Ala Ser Cys Ala
        195                 200                 205
Pro Leu Cys Thr Pro Gly Val Asp Val Tyr Trp Ser Arg Glu Asp Lys
    210                 215                 220
Arg Phe Ala Val Val Trp Leu Ala Ile Trp Ala Val Leu Cys Phe Phe
225                 230                 235                 240
Ser Ser Ala Phe Thr Val Leu Thr Phe Leu Ile Asp Pro Ala Arg Phe
                245                 250                 255
Arg Tyr Pro Glu Arg Pro Ile Ile Phe Leu Ser Met Cys Tyr Cys Val
            260                 265                 270
Tyr Ser Val Gly Tyr Leu Ile Arg Leu Phe Ala Gly Ala Glu Ser Ile
        275                 280                 285
Ala Cys Asp Arg Asp Ser Gly Gln Leu Tyr Val Ile Gln Glu Gly Leu
    290                 295                 300
Glu Ser Thr Gly Cys Thr Leu Val Phe Leu Val Leu Tyr Tyr Phe Gly
305                 310                 315                 320
Met Ala Ser Ser Leu Trp Trp Val Val Leu Thr Leu Thr Trp Phe Leu
                325                 330                 335
Ala Ala Gly Lys Lys Trp Gly His Glu Ala Ile Glu Ala Asn Ser Ser
            340                 345                 350
Tyr Phe His Leu Ala Ala Trp Ala Ile Pro Ala Val Lys Thr Ile Leu
        355                 360                 365
Ile Leu Val Met Arg Arg Val Ala Gly Asp Glu Leu Thr Gly Val Cys
    370                 375                 380
Tyr Val Gly Ser Met Asp Val Asn Ala Leu Thr Gly Phe Val Leu Ile
385                 390                 395                 400
Pro Leu Ala Cys Tyr Leu Val Ile Gly Thr Ser Phe Ile Leu Ser Gly
                405                 410                 415
Phe Val Ala Leu Phe His Ile Arg Arg Val Met Lys Thr Gly Gly Glu
            420                 425                 430
Asn Thr Asp Lys Leu Glu Lys Leu Met Val Arg Ile Gly Leu Phe Ser
        435                 440                 445
Val Leu Tyr Thr Val Pro Ala Thr Cys Val Ile Ala Cys Tyr Phe Xaa
    450                 455                 460
Glu His Leu Asn Met Asp Tyr Trp Lys Ile Leu Ala Ala Gln His Lys
465                 470                 475                 480
```

```
Cys Lys Met Asn Asn Gln Thr Lys Thr Leu Asp Cys Leu Met Ala Ala
                485                 490                 495
Ser Ile Pro Ala Val Glu Ile Phe Met Val Lys Ile Phe Met Leu Leu
            500                 505                 510
Val Val Gly Ile Thr Ser Gly Met Trp Ile Trp Thr Ser Lys Thr Leu
        515                 520                 525
Gln Ser Trp Gln Gln Val Cys Ser Arg Arg Leu Lys Lys Lys Ser Arg
    530                 535                 540
Arg Lys Pro Ala Ser Val Ile Thr Ser Gly Gly Ile Tyr Lys Lys Ala
545                 550                 555                 560
Gln His Pro Gln Lys Thr His His Gly Lys Tyr Glu Ile Pro Ala Gln
                565                 570                 575
Ser Pro Thr Cys Val
            580
```

<210> 61
<211> 319
<212> PRT
<213> Homo sapiens

<400> 61

```
Met Ala Glu Glu Glu Ala Pro Lys Lys Ser Arg Ala Ala Gly Gly Gly
 1               5                  10                  15
Ala Ser Trp Glu Leu Cys Ala Gly Ala Leu Ser Ala Arg Leu Ala Glu
            20                  25                  30
Glu Gly Ser Gly Asp Ala Gly Gly Arg Arg Arg Pro Pro Val Asp Pro
        35                  40                  45
Arg Arg Leu Ala Arg Gln Leu Leu Leu Leu Leu Trp Leu Leu Glu Ala
    50                  55                  60
Pro Leu Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Gly Pro Gly
65                  70                  75                  80
Gln Gly Pro Gly Pro Gly Gln Gln Pro Pro Pro Pro Pro Gln Gln Gln
                85                  90                  95
Gln Ser Gly Gln Gln Tyr Asn Gly Glu Arg Gly Ile Ser Val Pro Asp
            100                 105                 110
His Gly Tyr Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala
        115                 120                 125
Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu
    130                 135                 140
Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln
145                 150                 155                 160
Cys Ser Ala Glu Leu Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val
                165                 170                 175
Cys Thr Val Leu Glu Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu
            180                 185                 190
Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln
        195                 200                 205
Trp Pro Asp Thr Leu Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly
    210                 215                 220
Glu Leu Cys Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro
225                 230                 235                 240
Ser Leu Leu Pro Glu Phe Trp Thr Ser Asn Pro Gln His Gly Gly Gly
                245                 250                 255
Gly His Arg Gly Gly Phe Pro Gly Gly Ala Gly Ala Ser Glu Arg Gly
            260                 265                 270
Lys Phe Ser Cys Pro Arg Ala Leu Lys Val Pro Ser Tyr Leu Asn Tyr
        275                 280                 285
```

```
His Phe Leu Gly Glu Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys
    290                 295                 300
Val Tyr Gly Leu Met Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser
305                 310                 315

<210> 62
<211> 314
<212> PRT
<213> Mouse

<400> 62
Met Ala Glu Glu Ala Ala Pro Ser Glu Ser Arg Ala Ala Gly Arg Leu
 1               5                  10                  15
Ser Leu Glu Leu Cys Ala Glu Ala Leu Pro Gly Arg Arg Glu Glu Val
            20                  25                  30
Gly His Glu Asp Thr Ala Ser His Arg Arg Pro Arg Ala Asp Pro Arg
        35                  40                  45
Arg Trp Ala Ser Gly Leu Leu Leu Leu Leu Trp Leu Leu Glu Ala Pro
    50                  55                  60
Leu Leu Leu Gly Val Arg Ala Gln Ala Ala Gly Gln Val Ser Gly Pro
65                  70                  75                  80
Gly Gln Gln Ala Pro Pro Pro Pro Gln Pro Gln Gln Ser Gly Gln Gln
                85                  90                  95
Tyr Asn Gly Glu Arg Gly Ile Ser Ile Pro Asp His Gly Tyr Cys Gln
            100                 105                 110
Pro Ile Ser Ile Pro Leu Cys Thr Asp Met Ala Tyr Asn Gln Thr Ile
        115                 120                 125
Met Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly Leu Glu
    130                 135                 140
Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Ala Glu Leu
145                 150                 155                 160
Lys Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val Leu Glu
                165                 170                 175
Gln Ala Leu Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg Gln Gly
            180                 185                 190
Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Asp Thr Leu
        195                 200                 205
Lys Cys Glu Lys Phe Pro Val His Gly Ala Gly Glu Leu Cys Val Gly
    210                 215                 220
Gln Asn Thr Ser Asp Lys Gly Thr Pro Thr Pro Ser Leu Leu Pro Glu
225                 230                 235                 240
Phe Trp Thr Ser Asn Gly Gln His Gly Gly Gly Gly Tyr Arg Gly Gly
                245                 250                 255
Tyr Pro Gly Gly Ala Gly Thr Val Glu Arg Gly Lys Phe Ser Cys Pro
            260                 265                 270
Arg Ala Leu Arg Val Pro Ser Tyr Leu Asn Tyr His Phe Leu Gly Glu
        275                 280                 285
Lys Asp Cys Gly Ala Pro Cys Glu Pro Thr Lys Val Tyr Gly Leu Met
    290                 295                 300
Tyr Phe Gly Pro Glu Glu Leu Arg Phe Ser
305                 310

<210> 63
<211> 244
<212> PRT
<213> Homo sapiens
```

<400> 63
Met Arg Pro Arg Ser Ala Leu Pro Arg Leu Leu Leu Pro Leu Leu Leu
1 5 10 15
Leu Pro Ala Ala Gly Pro Ala Gln Phe His Gly Glu Lys Gly Ile Ser
20 25 30
Ile Pro Asp His Gly Phe Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr
35 40 45
Asp Ile Ala Tyr Asn Gln Thr Ile Met Pro Asn Leu Leu Gly His Thr
50 55 60
Asn Gln Glu Asp Ala Gly Leu Glu Val His Gln Phe Tyr Pro Leu Val
65 70 75 80
Lys Val Gln Cys Ser Pro Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr
85 90 95
Ala Pro Val Cys Thr Val Leu Glu Gln Ala Ile Pro Pro Cys Arg Ser
100 105 110
Ile Cys Glu Arg Ala Arg Gln Gly Cys Glu Ala Leu Met Asn Lys Phe
115 120 125
Gly Phe Gln Trp Pro Glu Arg Leu Arg Cys Glu His Phe Pro Arg His
130 135 140
Gly Ala Glu Gln Ile Cys Val Gly Gln Asn His Ser Glu Asp Gly Ala
145 150 155 160
Pro Ala Leu Leu Thr Thr Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala
165 170 175
Gly Gly Thr Pro Gly Gly Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr
180 185 190
Ala Thr Leu Glu His Pro Phe His Cys Pro Arg Val Leu Lys Val Pro
195 200 205
Ser Tyr Leu Ser Tyr Lys Phe Leu Gly Glu Arg Asp Cys Ala Ala Pro
210 215 220
Cys Glu Pro Ala Arg Pro Asp Gly Ser Met Phe Phe Ser Gln Glu Glu
225 230 235 240
Thr Arg Phe Ala

<210> 64
<211> 202
<212> PRT
<213> Homo sapiens

<400> 64
Met Ala Met Thr Trp Ile Val Phe Ser Leu Trp Pro Leu Thr Val Phe
1 5 10 15
Met Gly His Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
20 25 30
Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
35 40 45
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
50 55 60
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
65 70 75 80
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
85 90 95
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
100 105 110
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
115 120 125
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn

```
    130                 135                 140
Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
145                 150                 155                 160
Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                165                 170                 175
Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
            180                 185                 190
Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala
        195                 200
```

<210> 65
<211> 202
<212> PRT
<213> Mouse

<400> 65

```
Met Ala Val Ser Trp Ile Val Phe Asp Leu Trp Leu Leu Thr Val Phe
 1               5                  10                  15
Leu Gly Gln Ile Gly Gly His Ser Leu Phe Ser Cys Glu Pro Ile Thr
            20                  25                  30
Leu Arg Met Cys Gln Asp Leu Pro Tyr Asn Thr Thr Phe Met Pro Asn
        35                  40                  45
Leu Leu Asn His Tyr Asp Gln Gln Thr Ala Ala Leu Ala Met Glu Pro
    50                  55                  60
Phe His Pro Met Val Asn Leu Asp Cys Ser Arg Asp Phe Arg Pro Phe
65                  70                  75                  80
Leu Cys Ala Leu Tyr Ala Pro Ile Cys Met Glu Tyr Gly Arg Val Thr
                85                  90                  95
Leu Pro Cys Arg Arg Leu Cys Gln Arg Ala Tyr Ser Glu Cys Ser Lys
            100                 105                 110
Leu Met Glu Met Phe Gly Val Pro Trp Pro Glu Asp Met Glu Cys Ser
        115                 120                 125
Arg Phe Pro Asp Cys Asp Glu Pro Tyr Pro Arg Leu Val Asp Leu Asn
    130                 135                 140
Leu Val Gly Asp Pro Thr Glu Gly Ala Pro Val Ala Val Gln Arg Asp
145                 150                 155                 160
Tyr Gly Phe Trp Cys Pro Arg Glu Leu Lys Ile Asp Pro Asp Leu Gly
                165                 170                 175
Tyr Ser Phe Leu His Val Arg Asp Cys Ser Pro Pro Cys Pro Asn Met
            180                 185                 190
Tyr Phe Arg Arg Glu Glu Leu Ser Phe Ala
        195                 200
```

<210> 66
<211> 219
<212> PRT
<213> Homo sapiens

<400> 66

```
Met Ala Trp Arg Gly Ala Gly Pro Ser Val Pro Gly Ala Pro Gly Gly
 1               5                  10                  15
Val Gly Leu Ser Leu Gly Leu Leu Leu Gln Leu Leu Leu Leu Leu Gly
            20                  25                  30
Pro Ala Arg Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
        35                  40                  45
Arg Ile Ser Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
    50                  55                  60
```

```
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
65                  70                  75                  80
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                85                  90                  95
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
            100                 105                 110
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
        115                 120                 125
Glu Pro Val Leu Lys Glu Phe Gly Phe Ala Trp Pro Glu Ser Leu Asn
    130                 135                 140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
145                 150                 155                 160
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                165                 170                 175
Pro Gly Glu Glu Cys His Ser Val Gly Thr Asn Ser Asp Gln Tyr Ile
            180                 185                 190
Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
        195                 200                 205
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr
    210                 215

<210> 67
<211> 219
<212> PRT
<213> Mouse

<400> 67
Met Ala Trp Pro Gly Thr Gly Pro Ser Ser Arg Gly Ala Pro Gly Gly
 1               5                  10                  15
Val Gly Leu Arg Leu Gly Leu Leu Leu Gln Phe Leu Leu Leu Leu Arg
            20                  25                  30
Pro Thr Leu Gly Phe Gly Asp Glu Glu Glu Arg Arg Cys Asp Pro Ile
        35                  40                  45
Arg Ile Ala Met Cys Gln Asn Leu Gly Tyr Asn Val Thr Lys Met Pro
    50                  55                  60
Asn Leu Val Gly His Glu Leu Gln Thr Asp Ala Glu Leu Gln Leu Thr
65                  70                  75                  80
Thr Phe Thr Pro Leu Ile Gln Tyr Gly Cys Ser Ser Gln Leu Gln Phe
                85                  90                  95
Phe Leu Cys Ser Val Tyr Val Pro Met Cys Thr Glu Lys Ile Asn Ile
            100                 105                 110
Pro Ile Gly Pro Cys Gly Gly Met Cys Leu Ser Val Lys Arg Arg Cys
        115                 120                 125
Glu Pro Val Leu Arg Glu Phe Gly Phe Ala Trp Pro Asp Thr Leu Asn
    130                 135                 140
Cys Ser Lys Phe Pro Pro Gln Asn Asp His Asn His Met Cys Met Glu
145                 150                 155                 160
Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr Pro Ile Gln
                165                 170                 175
Pro Gly Glu Glu Cys His Ser Val Gly Ser Asn Ser Asp Gln Tyr Ile
            180                 185                 190
Trp Val Lys Arg Ser Leu Asn Cys Val Leu Lys Cys Gly Tyr Asp Ala
        195                 200                 205
Gly Leu Tyr Ser Arg Ser Ala Lys Glu Phe Thr
    210                 215

<210> 68
```

<211> 235
<212> PRT
<213> Homo sapiens

<400> 68
Met Ala Arg Pro Asp Pro Ser Ala Pro Pro Ser Leu Leu Leu Leu Leu
 1   5   10   15
Leu Ala Gln Leu Val Gly Arg Ala Ala Ala Ala Ser Lys Ala Pro Val
            20   25   30
Cys Gln Glu Ile Thr Val Pro Met Cys Arg Gly Ile Gly Tyr Asn Leu
        35   40   45
Thr His Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu Ala Gly
    50   55   60
Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys Ser Pro
65   70   75   80
Asp Leu Arg Phe Phe Leu Cys Thr Met Tyr Thr Pro Ile Cys Leu Pro
                85   90   95
Asp Tyr His Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu Arg Ala
            100   105   110
Lys Ala Gly Cys Ser Pro Leu Met Arg Gln Tyr Gly Phe Ala Trp Pro
        115   120   125
Glu Arg Met Ser Cys Asp Arg Leu Pro Val Leu Gly Arg Asp Ala Glu
    130   135   140
Val Leu Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro
145   150   155   160
Arg Pro Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro
                165   170   175
Ala Ser Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
            180   185   190
Arg Glu Pro Phe Val Pro Ile Leu Lys Glu Ser His Pro Leu Tyr Asn
        195   200   205
Lys Val Arg Thr Gly Gln Val Pro Asn Cys Ala Val Pro Cys Tyr Gln
    210   215   220
Pro Ser Phe Ser Ala Asp Glu Arg Thr Phe Ala
225   230   235

<210> 69
<211> 198
<212> PRT
<213> Homo sapiens

<400> 69
Met Glu Met Phe Thr Phe Leu Leu Thr Cys Ile Phe Leu Pro Leu Leu
 1   5   10   15
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
            20   25   30
Met Lys Met Ala Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
        35   40   45
Tyr Asp Gln Ser Ile Ala Ala Val Glu Met Glu His Phe Leu Pro Leu
    50   55   60
Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Thr Phe Leu Cys Lys Ala
65   70   75   80
Phe Val Pro Thr Cys Ile Glu Gln Ile His Val Val Pro Pro Cys Arg
                85   90   95
Lys Leu Cys Glu Lys Val Tyr Ser Asp Cys Lys Lys Leu Ile Asp Thr
            100   105   110
Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asp Arg Leu Gln Tyr

```
        115                 120                 125
Cys Asp Glu Thr Val Pro Val Thr Phe Asp Pro His Thr Glu Phe Leu
    130                 135                 140
Gly Pro Gln Lys Lys Thr Glu Gln Val Gln Arg Asp Ile Gly Phe Trp
145                 150                 155                 160
Cys Pro Arg His Leu Lys Thr Ser Gly Gly Gln Gly Tyr Lys Phe Leu
                165                 170                 175
Gly Ile Asp Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
            180                 185                 190
Asp Glu Leu Glu Phe Ala
        195

<210> 70
<211> 198
<212> PRT
<213> Mouse

<400> 70
Met Glu Arg Ser Pro Phe Leu Leu Ala Cys Ile Leu Leu Pro Leu Val
 1               5                  10                  15
Arg Gly His Ser Leu Phe Thr Cys Glu Pro Ile Thr Val Pro Arg Cys
            20                  25                  30
Met Lys Met Thr Tyr Asn Met Thr Phe Phe Pro Asn Leu Met Gly His
        35                  40                  45
Tyr Asp Gln Gly Ile Ala Ala Val Glu Met Gly His Phe Leu His Leu
    50                  55                  60
Ala Asn Leu Glu Cys Ser Pro Asn Ile Glu Met Phe Leu Cys Gln Ala
65                  70                  75                  80
Phe Ile Pro Thr Cys Thr Glu Gln Ile His Val Val Leu Pro Cys Arg
                85                  90                  95
Lys Leu Cys Glu Lys Ile Val Ser Asp Cys Lys Lys Leu Met Asp Thr
            100                 105                 110
Phe Gly Ile Arg Trp Pro Glu Glu Leu Glu Cys Asn Arg Leu Pro His
        115                 120                 125
Cys Asp Asp Thr Val Pro Val Thr Ser His Pro His Thr Glu Leu Ser
    130                 135                 140
Gly Pro Gln Lys Lys Ser Asp Gln Val Pro Arg Asp Ile Gly Phe Trp
145                 150                 155                 160
Cys Pro Lys His Leu Arg Thr Ser Gly Asp Gln Gly Tyr Arg Phe Leu
                165                 170                 175
Gly Ile Glu Gln Cys Ala Pro Pro Cys Pro Asn Met Tyr Phe Lys Ser
            180                 185                 190
Asp Glu Leu Asp Phe Ala
        195

<210> 71
<211> 253
<212> PRT
<213> Homo sapiens

<400> 71
Met Arg Asp Pro Gly Ala Ala Ala Pro Leu Ser Ser Leu Gly Leu Cys
 1               5                  10                  15
Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Ser Ala Gly Ala Gly Ala
            20                  25                  30
Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
        35                  40                  45
```

```
Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
    50                  55                  60
Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
65                  70                  75                  80
Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
                85                  90                  95
Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
            100                 105                 110
Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
        115                 120                 125
Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
    130                 135                 140
Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
145                 150                 155                 160
Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Gly Pro
                165                 170                 175
Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala
            180                 185                 190
Leu Pro Pro Gly Ala Ser Asp Gly Arg Gly Arg Pro Ala Phe Pro Phe
        195                 200                 205
Ser Cys Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe
    210                 215                 220
Leu Gly Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn
225                 230                 235                 240
Gly Leu Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala
                245                 250
```

<210> 72
<211> 251
<212> PRT
<213> Mouse

<400> 72

```
Met Arg Gly Pro Gly Thr Ala Ala Ser His Ser Pro Leu Gly Leu Cys
 1               5                  10                  15
Ala Leu Val Leu Ala Leu Leu Gly Ala Leu Pro Thr Asp Thr Arg Ala
            20                  25                  30
Gln Pro Tyr His Gly Glu Lys Gly Ile Ser Val Pro Asp His Gly Phe
        35                  40                  45
Cys Gln Pro Ile Ser Ile Pro Leu Cys Thr Asp Ile Ala Tyr Asn Gln
    50                  55                  60
Thr Ile Leu Pro Asn Leu Leu Gly His Thr Asn Gln Glu Asp Ala Gly
65                  70                  75                  80
Leu Glu Val His Gln Phe Tyr Pro Leu Val Lys Val Gln Cys Ser Pro
                85                  90                  95
Glu Leu Arg Phe Phe Leu Cys Ser Met Tyr Ala Pro Val Cys Thr Val
            100                 105                 110
Leu Asp Gln Ala Ile Pro Pro Cys Arg Ser Leu Cys Glu Arg Ala Arg
        115                 120                 125
Gln Gly Cys Glu Ala Leu Met Asn Lys Phe Gly Phe Gln Trp Pro Glu
    130                 135                 140
Arg Leu Arg Cys Glu Asn Phe Pro Val His Gly Ala Gly Glu Ile Cys
145                 150                 155                 160
Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Ala Gly Gly Ser Pro
                165                 170                 175
Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Pro Pro Phe Thr Ala
            180                 185                 190
```

```
Met Ser Pro Ser Asp Gly Arg Gly Arg Leu Ser Phe Pro Phe Ser Cys
        195                 200                 205
Pro Arg Gln Leu Lys Val Pro Pro Tyr Leu Gly Tyr Arg Phe Leu Gly
    210                 215                 220
Glu Arg Asp Cys Gly Ala Pro Cys Glu Pro Gly Arg Ala Asn Gly Leu
225                 230                 235                 240
Met Tyr Phe Lys Glu Glu Glu Arg Arg Phe Ala
                245                 250
```

<210> 73
<211> 277
<212> PRT
<213> Homo sapiens

<400> 73

```
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
 1               5                  10                  15
Ala Leu Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
            20                  25                  30
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
        35                  40                  45
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
    50                  55                  60
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
65                  70                  75                  80
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
                85                  90                  95
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
            100                 105                 110
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
        115                 120                 125
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
    130                 135                 140
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
145                 150                 155                 160
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Gly Glu Gln Pro
                165                 170                 175
Pro Ser Gly Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His
            180                 185                 190
Arg Gly Gly Gly Arg Gly Gly Gly Gly Gly Asp Ala Ala Ala Pro Pro
        195                 200                 205
Ala Arg Gly Gly Gly Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly
    210                 215                 220
Ala Ala Pro Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser
225                 230                 235                 240
Val Ser Ser Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln
                245                 250                 255
Ile Ala Asn Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp
            260                 265                 270
Glu Arg Ala Phe Thr
        275
```

<210> 74
<211> 274
<212> PRT
<213> Mouse

<400> 74
Met Glu Trp Gly Tyr Leu Leu Glu Val Thr Ser Leu Leu Ala Ala Leu
1 5 10 15
Ala Val Leu Gln Arg Ser Ser Gly Ala Ala Ala Ala Ser Ala Lys Glu
20 25 30
Leu Ala Cys Gln Glu Ile Thr Val Pro Leu Cys Lys Gly Ile Gly Tyr
35 40 45
Asn Tyr Thr Tyr Met Pro Asn Gln Phe Asn His Asp Thr Gln Asp Glu
50 55 60
Ala Gly Leu Glu Val His Gln Phe Trp Pro Leu Val Glu Ile Gln Cys
65 70 75 80
Ser Pro Asp Leu Lys Phe Phe Leu Cys Ser Met Tyr Thr Pro Ile Cys
85 90 95
Leu Glu Asp Tyr Lys Lys Pro Leu Pro Pro Cys Arg Ser Val Cys Glu
100 105 110
Arg Ala Lys Ala Gly Cys Ala Pro Leu Met Arg Gln Tyr Gly Phe Ala
115 120 125
Trp Pro Asp Arg Met Arg Cys Asp Arg Leu Pro Glu Gln Gly Asn Pro
130 135 140
Asp Thr Leu Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala
145 150 155 160
Pro Ser Pro Pro Arg Arg Leu Pro Pro Pro Pro Pro Pro Gly Glu Gln
165 170 175
Pro Pro Ser Gly Ser Gly His Ser Arg Pro Pro Gly Ala Arg Pro Pro
180 185 190
His Arg Gly Gly Ser Ser Arg Gly Ser Gly Asp Ala Ala Ala Ala Pro
195 200 205
Pro Ser Arg Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly Ala Ala Pro
210 215 220
Cys Glu Pro Gly Cys Gln Cys Arg Ala Pro Met Val Ser Val Ser Ser
225 230 235 240
Glu Arg His Pro Leu Tyr Asn Arg Val Lys Thr Gly Gln Ile Ala Asn
245 250 255
Cys Ala Leu Pro Cys His Asn Pro Phe Phe Ser Gln Asp Glu Arg Ala
260 265 270
Phe Thr

<210> 75
<211> 231
<212> PRT
<213> Homo sapiens

<400> 75
Met Ala Val Ala Pro Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu Leu
1 5 10 15
Ala Ala Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu Arg
20 25 30
Gly Arg Gly Ala Ala Pro Cys Gln Ala Val Glu Ile Pro Met Cys Arg
35 40 45
Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His Thr
50 55 60
Ser Gln Gly Glu Ala Ala Ala Glu Leu Ala Glu Phe Ala Pro Leu Val
65 70 75 80
Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu Tyr
85 90 95
Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys Arg

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            100                 105                 110
Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu Gln
        115                 120                 125
Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro Thr
    130                 135                 140
Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala Thr
145                 150                 155                 160
Ala Gly Pro Ala Glu Pro His Lys Gly Leu Gly Met Leu Pro Val Ala
                165                 170                 175
Pro Arg Pro Ala Arg Pro Pro Gly Asp Leu Gly Pro Gly Ala Gly Gly
            180                 185                 190
Ser Gly Thr Cys Glu Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys Ser
        195                 200                 205
Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp Ser
    210                 215                 220
Arg Arg Asp Lys Asp Phe Ala
225                 230

<210> 76
<211> 232
<212> PRT
<213> Mouse

<400> 76
Met Ala Val Pro Pro Leu Leu Arg Gly Ala Leu Leu Leu Trp Gln Leu
 1               5                  10                  15
Leu Ala Thr Gly Gly Ala Ala Leu Glu Ile Gly Arg Phe Asp Pro Glu
            20                  25                  30
Arg Gly Arg Gly Pro Ala Pro Cys Gln Ala Met Glu Ile Pro Met Cys
        35                  40                  45
Arg Gly Ile Gly Tyr Asn Leu Thr Arg Met Pro Asn Leu Leu Gly His
    50                  55                  60
Thr Ser Gln Gly Glu Ala Ala Ala Gln Leu Ala Glu Phe Ser Pro Leu
65                  70                  75                  80
Val Gln Tyr Gly Cys His Ser His Leu Arg Phe Phe Leu Cys Ser Leu
                85                  90                  95
Tyr Ala Pro Met Cys Thr Asp Gln Val Ser Thr Pro Ile Pro Ala Cys
            100                 105                 110
Arg Pro Met Cys Glu Gln Ala Arg Leu Arg Cys Ala Pro Ile Met Glu
        115                 120                 125
Gln Phe Asn Phe Gly Trp Pro Asp Ser Leu Asp Cys Ala Arg Leu Pro
    130                 135                 140
Thr Arg Asn Asp Pro His Ala Leu Cys Met Glu Ala Pro Glu Asn Ala
145                 150                 155                 160
Thr Ala Gly Pro Thr Glu Pro His Lys Gly Leu Gly Met Leu Pro Val
                165                 170                 175
Ala Pro Arg Pro Ala Arg Pro Pro Gly Asp Ser Ala Pro Gly Pro Gly
            180                 185                 190
Ser Gly Gly Thr Cys Asp Asn Pro Glu Lys Phe Gln Tyr Val Glu Lys
        195                 200                 205
Ser Arg Ser Cys Ala Pro Arg Cys Gly Pro Gly Val Glu Val Phe Trp
    210                 215                 220
Ser Arg Arg Asp Lys Asp Phe Ala
225                 230

<210> 77
<211> 227
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<212> PRT
<213> Homo sapiens

<400> 77
Met Gln Arg Pro Gly Pro Arg Leu Trp Leu Val Leu Gln Val Met Gly
 1   5   10   15
Ser Cys Ala Ala Ile Ser Ser Met Asp Met Glu Arg Pro Gly Asp Gly
            20   25   30
Lys Cys Gln Pro Ile Glu Ile Pro Met Cys Lys Asp Ile Gly Tyr Asn
        35   40   45
Met Thr Arg Met Pro Asn Leu Met Gly His Glu Asn Gln Arg Glu Ala
    50   55   60
Ala Ile Gln Leu His Glu Phe Ala Pro Leu Val Glu Tyr Gly Cys His
65   70   75   80
Gly His Leu Arg Phe Phe Leu Cys Ser Leu Tyr Ala Pro Met Cys Thr
                85   90   95
Glu Gln Val Ser Thr Pro Ile Pro Ala Cys Arg Val Met Cys Glu Gln
            100   105   110
Ala Arg Leu Lys Cys Ser Pro Ile Met Glu Gln Phe Asn Phe Lys Trp
        115   120   125
Pro Asp Ser Leu Asp Cys Arg Lys Leu Pro Asn Lys Asn Asp Pro Asn
    130   135   140
Tyr Leu Cys Met Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr Arg
145   150   155   160
Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His Ser
                165   170   175
Ala Gln Glu His Pro Leu Lys Asp Gly Gly Pro Gly Arg Gly Gly Cys
            180   185   190
Asp Asn Pro Gly Lys Phe His His Val Glu Lys Ser Ala Ser Cys Ala
        195   200   205
Pro Leu Cys Thr Pro Gly Val Asp Val Tyr Trp Ser Arg Glu Asp Lys
    210   215   220
Arg Phe Ala
225

<210> 78
<211> 29
<212> PRT
<213> Homo sapiens

<400> 78
Asp Arg Val Val Cys Asn Asp Lys Phe Ala Glu Asp Gly Ala Arg Thr
 1   5   10   15
Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu
            20   25

<210> 79
<211> 29
<212> PRT
<213> Mouse

<400> 79
Asp Arg Val Val Cys Asn Asp Lys Phe Ala Glu Asp Gly Ala Arg Thr
 1   5   10   15
Val Ala Gln Gly Thr Asn Lys Glu Gly Cys Thr Ile Leu
            20   25

<210> 80
<211> 29
<212> PRT
<213> Homo sapiens

<400> 80
Glu Arg Val Val Cys Asn Glu Arg Phe Ser Glu Asp Gly Tyr Arg Thr
 1   5   10   15
Val Val Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu
            20   25

<210> 81
<211> 30
<212> PRT
<213> Homo sapiens

<400> 81
Asp Arg Val Ala Cys Asn Ala Ser Ile Pro Ala Gln Tyr Lys Ala Ser
 1   5   10   15
Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met Leu
            20   25   30

<210> 82
<211> 30
<212> PRT
<213> Mouse

<400> 82
Asp Arg Val Ala Cys Asn Ala Ser Ser Pro Ala Gln Tyr Lys Ala Ser
 1   5   10   15
Thr Val Thr Gln Gly Ser His Asn Lys Ala Cys Thr Met Leu
            20   25   30

<210> 83
<211> 29
<212> PRT
<213> Homo sapiens

<400> 83
Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala Glu Pro Val Leu
 1   5   10   15
Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile Ile
            20   25

<210> 84
<211> 29
<212> PRT
<213> Mouse

<400> 84
Arg Glu Arg Ile Ser Cys Asp Phe Glu Glu Ala Ala Glu Pro Val Leu
 1   5   10   15
Ile Gln Glu Gly Leu Lys Asn Thr Gly Cys Ala Ile Ile
            20   25

<210> 85
<211> 26

<212> PRT
<213> Homo sapiens

<400> 85
His Ala Ser Val Ala Cys Ser Arg Glu His Asn His Ile His Tyr Glu
 1   5   10   15
Thr Thr Gly Pro Ala Leu Cys Thr Ile Val
            20   25

<210> 86
<211> 30
<212> PRT
<213> Homo sapiens

<400> 86
Asp Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp
 1   5   10   15
Thr Val Val Leu Gly Ser Gln Asn Lys Ala Cys Thr Val Leu
            20   25   30

<210> 87
<211> 30
<212> PRT
<213> Mouse

<400> 87
Asn Ser Thr Ala Cys Asn Lys Ala Asp Glu Lys Leu Glu Leu Gly Asp
 1   5   10   15
Thr Val Val Leu Gly Ser Lys Asn Lys Ala Cys Ser Val Val
            20   25   30

<210> 88
<211> 29
<212> PRT
<213> Homo sapiens

<400> 88
Asp Arg Ala Val Cys Val Glu Arg Phe Ser Asp Asp Gly Tyr Arg Thr
 1   5   10   15
Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu
            20   25

<210> 89
<211> 29
<212> PRT
<213> Mouse

<400> 89
Asp Arg Ala Val Cys Val Glu Arg Phe Ser Asp Asp Gly Tyr Arg Thr
 1   5   10   15
Val Ala Gln Gly Thr Lys Lys Glu Gly Cys Thr Ile Leu
            20   25

<210> 90
<211> 65
<212> PRT
<213> Homo sapiens

<400> 90
His Glu Lys Val Ala Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Ala
1 5 10 15
Gly Gly Ala Gly Gly Ala Ala Ala Gly Ala Gly Ala Ala Gly Ala Gly
20 25 30
Ala Gly Gly Pro Gly Gly Arg Gly Glu Tyr Glu Glu Leu Gly Ala Val
35 40 45
Glu Gln His Val Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr Val
50 55 60
Val
65

<210> 91
<211> 66
<212> PRT
<213> Mouse

<400> 91
His Glu Lys Val Ala Cys Ser Gly Gly Ala Pro Gly Ala Gly Gly Arg
1 5 10 15
Gly Gly Ala Gly Gly Ala Ala Ala Ala Gly Ala Gly Ala Ala Gly Arg
20 25 30
Gly Ala Ser Ser Pro Gly Ala Arg Gly Glu Tyr Glu Glu Leu Gly Ala
35 40 45
Val Glu Gln His Val Arg Tyr Glu Thr Thr Gly Pro Ala Leu Cys Thr
50 55 60
Val Val
65

<210> 92
<211> 28
<212> PRT
<213> Homo sapiens

<400> 92
Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
1 5 10 15
Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val
20 25

<210> 93
<211> 28
<212> PRT
<213> Mouse

<400> 93
Ala Gln Ser Val Ala Cys Asp Gln Glu Ala Gly Ala Leu Tyr Val Ile
1 5 10 15
Gln Glu Gly Leu Glu Asn Thr Gly Cys Thr Leu Val
20 25

<210> 94
<211> 28
<212> PRT
<213> Homo sapiens

<400> 94
Ala Glu Ser Ile Ala Cys Asp Arg Asp Ser Gly Gln Leu Tyr Val Ile
1 5 10 15
Gln Glu Gly Leu Glu Ser Thr Gly Cys Thr Leu Val
20 25

<210> 95
<211> 25
<212> PRT
<213> Homo sapiens

<400> 95
Gly Gln Val Asp Gly Asp Val Leu Ser Gly Val Cys Phe Val Gly Leu
1 5 10 15
Asn Asn Val Asp Ala Leu Arg Gly Phe
20 25

<210> 96
<211> 25
<212> PRT
<213> Mouse

<400> 96
Gly Gln Val Asp Gly Asp Val Leu Ser Gly Val Cys Phe Leu Gly Leu
1 5 10 15
Asn Asn Val Asp Ala Leu Arg Gly Phe
20 25

<210> 97
<211> 25
<212> PRT
<213> Homo sapiens

<400> 97
Gly Gln Ile Asp Gly Asp Leu Leu Ser Gly Val Cys Phe Val Gly Leu
1 5 10 15
Asn Ser Leu Asp Pro Leu Arg Gly Phe
20 25

<210> 98
<211> 25
<212> PRT
<213> Homo sapiens

<400> 98
Asn Lys Ile Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu
1 5 10 15
Tyr Asp Val Asp Ala Leu Arg Tyr Phe
20 25

<210> 99
<211> 25
<212> PRT
<213> Mouse

<400> 99
Asn Lys Ile Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu

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 1               5                   10                  15
Tyr Asp Val Asp Ala Leu Arg Tyr Phe
            20                  25

<210> 100
<211> 25
<212> PRT
<213> Homo sapiens

<400> 100
Arg Leu Val Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn
 1               5                   10                  15
Gln Asn Leu Asp Ala Leu Thr Gly Phe
            20                  25

<210> 101
<211> 25
<212> PRT
<213> Mouse

<400> 101
Arg Leu Val Asp Ala Asp Glu Leu Thr Gly Leu Cys Tyr Val Gly Asn
 1               5                   10                  15
Gln Asn Leu Asp Ala Leu Thr Gly Phe
            20                  25

<210> 102
<211> 25
<212> PRT
<213> Homo sapiens

<400> 102
Ser Ser Val Asp Gly Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn
 1               5                   10                  15
Gln Asn Leu Asn Ser Leu Arg Arg Phe
            20                  25

<210> 103
<211> 25
<212> PRT
<213> Homo sapiens

<400> 103
Asn Lys Val Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu
 1               5                   10                  15
Tyr Asp Leu Asp Ala Ser Arg Tyr Phe
            20                  25

<210> 104
<211> 25
<212> PRT
<213> Mouse

<400> 104
Asn Lys Val Glu Gly Asp Asn Ile Ser Gly Val Cys Phe Val Gly Leu
 1               5                   10                  15
Tyr Asp Leu Asp Ala Ser Arg Tyr Phe
```

20 25

<210> 105
<211> 25
<212> PRT
<213> Homo sapiens

<400> 105
Gly Gln Val Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu
1 5 10 15
Ser Ser Val Asp Ala Leu Arg Gly Phe
20 25

<210> 106
<211> 25
<212> PRT
<213> Mouse

<400> 106
Gly Gln Val Asp Gly Asp Leu Leu Ser Gly Val Cys Tyr Val Gly Leu
1 5 10 15
Ser Ser Val Asp Ala Leu Arg Gly Phe
20 25

<210> 107
<211> 25
<212> PRT
<213> Homo sapiens

<400> 107
Ser Ser Val Asp Gly Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn
1 5 10 15
Gln Ser Leu Asp Asn Leu Arg Gly Phe
20 25

<210> 108
<211> 25
<212> PRT
<213> Mouse

<400> 108
Ser Ser Val Asp Gly Asp Pro Val Ala Gly Ile Cys Tyr Val Gly Asn
1 5 10 15
Gln Ser Leu Asp Asn Leu Arg Gly Phe
20 25

<210> 109
<211> 25
<212> PRT
<213> Homo sapiens

<400> 109
Arg Lys Val Ala Gly Asp Glu Leu Thr Gly Leu Cys Tyr Val Ala Ser
1 5 10 15
Thr Asp Ala Ala Ala Leu Thr Gly Phe
20 25

<210> 110
<211> 25
<212> PRT
<213> Mouse

<400> 110
Arg Lys Val Ala Gly Asp Glu Leu Thr Gly Leu Cys Tyr Val Ala Ser
 1   5   10   15
Met Asp Pro Ala Ala Leu Thr Gly Phe
            20   25

<210> 111
<211> 24
<212> PRT
<213> Homo sapiens

<400> 111
Arg Arg Val Ala Gly Asp Glu Leu Thr Gly Val Cys Tyr Val Gly Ser
 1   5   10   15
Met Asp Val Asn Ala Leu Thr Gly
            20

<210> 112
<211> 39
<212> PRT
<213> Homo sapiens

<400> 112
Ala Phe Arg Asp Gln Trp Glu Arg Ser Trp Val Ala Gln Ser Cys Lys
 1   5   10   15
Ser Tyr Ala Ile Pro Cys Pro His Leu Gln Ala Gly Gly Gly Ala Pro
            20   25   30
Pro His Pro Pro Met Ser Pro
        35

<210> 113
<211> 39
<212> PRT
<213> Mouse

<400> 113
Ala Phe Arg Asp Gln Trp Glu Arg Ser Trp Val Ala Gln Ser Cys Lys
 1   5   10   15
Ser Tyr Ala Ile Pro Cys Pro His Leu Gln Gly Gly Gly Gly Val Pro
            20   25   30
Pro His Pro Pro Met Ser Pro
        35

<210> 114
<211> 32
<212> PRT
<213> Homo sapiens

<400> 114
Ala Phe Arg Glu His Trp Glu Arg Ser Trp Val Ser Gln His Cys Lys
 1   5   10   15
Ser Leu Ala Ile Pro Cys Pro Ala His Tyr Thr Pro Arg Met Ser Pro

20 25 30

<210> 115
<211> 32
<212> PRT
<213> Homo sapiens

<400> 115
Ala Tyr Arg Gly Ile Trp Glu Thr Thr Trp Ile Gln Glu Arg Cys Arg
1 5 10 15
Glu Tyr His Ile Pro Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro
20 25 30

<210> 116
<211> 32
<212> PRT
<213> Mouse

<400> 116
Ala Tyr Arg Gly Ile Trp Glu Thr Thr Trp Ile Gln Glu Arg Cys Arg
1 5 10 15
Glu Tyr His Ile Pro Cys Pro Tyr Gln Val Thr Gln Met Ser Arg Pro
20 25 30

<210> 117
<211> 17
<212> PRT
<213> Homo sapiens

<400> 117
Ser Asn Trp Ala Leu Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala
1 5 10 15
Val

<210> 118
<211> 17
<212> PRT
<213> Mouse

<400> 118
Ser Asn Trp Ala Leu Phe Arg Tyr Ser Ala Asp Asp Ser Asn Met Ala
1 5 10 15
Val

<210> 119
<211> 26
<212> PRT
<213> Homo sapiens

<400> 119
His Tyr Arg Glu Ser Trp Glu Ala Ala Leu Thr Cys Ala Cys Pro Gly
1 5 10 15
His Asp Thr Gly Gln Pro Arg Ala Lys Pro
20 25

<210> 120
<211> 32
<212> PRT
<213> Homo sapiens

<400> 120
Val Asn Arg Ile Thr Trp Glu Ile Thr Trp Val Ser Asp His Cys Arg
 1   5   10   15
Gln Tyr His Ile Pro Cys Pro Tyr Gln Ala Lys Ala Lys Ala Arg Pro
            20   25   30

<210> 121
<211> 32
<212> PRT
<213> Mouse

<400> 121
Val Asn Arg Ile Thr Trp Glu Met Thr Trp Phe Ser Asp His Cys His
 1   5   10   15
Gln Tyr Arg Ile Pro Cys Pro Tyr Gln Ala Asn Pro Lys Ala Arg Pro
            20   25   30

<210> 122
<211> 32
<212> PRT
<213> Homo sapiens

<400> 122
Ala Phe Arg Glu His Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys
 1   5   10   15
Ser Tyr Ala Val Pro Cys Pro Pro Gly His Phe Pro Pro Met Ser Pro
            20   25   30

<210> 123
<211> 32
<212> PRT
<213> Mouse

<400> 123
Ala Phe Arg Glu His Trp Glu Arg Thr Trp Leu Leu Gln Thr Cys Lys
 1   5   10   15
Ser Tyr Ala Val Pro Cys Pro Pro Arg His Phe Ser Pro Met Ser Pro
            20   25   30

<210> 124
<211> 26
<212> PRT
<213> Homo sapiens

<400> 124
His Asn Arg Pro Arg Trp Glu Ala Thr His Asn Cys Pro Cys Leu Arg
 1   5   10   15
Asp Leu Gln Pro Asp Gln Ala Arg Arg Pro
            20   25

<210> 125
<211> 26

<212> PRT
<213> Mouse

<400> 125
His Asn Arg Pro Arg Trp Glu Ala Thr His Asn Cys Pro Cys Leu Arg
 1   5   10   15
Asp Leu Gln Pro Asp Gln Ala Arg Arg Pro
            20   25

<210> 126
<211> 35
<212> PRT
<213> Homo sapiens

<400> 126
Leu Asn Met Asp Phe Trp Arg Leu Arg Ala Thr Glu Gln Pro Cys Ala
 1   5   10   15
Ala Ala Ala Gly Pro Gly Gly Arg Arg Asp Cys Ser Leu Pro Gly Gly
            20   25   30
Ser Val Pro
        35

<210> 127
<211> 35
<212> PRT
<213> Mouse

<400> 127
Leu Asn Met Asp Phe Trp Arg Leu Arg Ala Thr Glu Gln Pro Cys Thr
 1   5   10   15
Ala Ala Thr Val Pro Gly Gly Arg Arg Asp Cys Ser Leu Pro Gly Gly
            20   25   30
Ser Val Pro
        35

<210> 128
<211> 33
<212> PRT
<213> Homo sapiens

<400> 128
Leu Asn Met Asp Tyr Trp Lys Ile Leu Ala Ala Gln His Lys Cys Lys
 1   5   10   15
Met Asn Asn Gln Thr Lys Thr Leu Asp Cys Leu Met Ala Ala Ser Ile
            20   25   30
Pro

<210> 129
<211> 48
<212> PRT
<213> Homo sapiens

<400> 129
Val Gly Gln Asn Thr Ser Asp Lys Gly Thr Pro Ser Leu Leu Pro Glu
 1   5   10   15
Phe Trp Thr Ser Asn Pro Gln His Gly Gly Gly His Arg Gly Gly Phe

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            20                  25                  30
Pro Gly Gly Ala Gly Ala Ser Glu Arg Gly Lys Phe Ser Cys Pro Arg
        35                  40                  45

<210> 130
<211> 51
<212> PRT
<213> Homo sapiens

<400> 130
Val Gly Gln Asn His Ser Glu Asp Gly Ala Pro Ala Leu Leu Thr Thr
 1               5                  10                  15
Ala Pro Pro Pro Gly Leu Gln Pro Gly Ala Gly Gly Thr Pro Gly Gly
            20                  25                  30
Pro Gly Gly Gly Gly Ala Pro Pro Arg Tyr Ala Thr Leu Glu His Pro
        35                  40                  45
Phe His Cys
    50

<210> 131
<211> 26
<212> PRT
<213> Homo sapiens

<400> 131
Leu Val Asp Leu Asn Leu Ala Gly Glu Pro Thr Glu Gly Ala Pro Val
 1               5                  10                  15
Ala Val Gln Arg Asp Tyr Gly Phe Trp Cys
            20                  25

<210> 132
<211> 20
<212> PRT
<213> Homo sapiens

<400> 132
Cys Met Glu Gly Pro Gly Asp Glu Glu Val Pro Leu Pro His Lys Thr
 1               5                  10                  15
Pro Ile Gln Pro
            20

<210> 133
<211> 46
<212> PRT
<213> Homo sapiens

<400> 133
Cys Met Asp Tyr Asn Arg Ser Glu Ala Thr Thr Ala Pro Pro Arg Pro
 1               5                  10                  15
Phe Pro Ala Lys Pro Thr Leu Pro Gly Pro Pro Gly Ala Pro Ala Ser
            20                  25                  30
Gly Gly Glu Cys Pro Ala Gly Gly Pro Phe Val Cys Lys Cys
        35                  40                  45

<210> 134
<211> 26
<212> PRT
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<213> Homo sapiens

<400> 134
Thr Phe Asp Pro His Thr Glu Phe Leu Gly Pro Gln Lys Lys Thr Glu
 1   5   10   15
Gln Val Gln Arg Asp Ile Gly Phe Met Cys
            20   25

<210> 135
<211> 50
<212> PRT
<213> Homo sapiens

<400> 135
Val Gly Gln Asn Thr Ser Asp Gly Ser Gly Gly Pro Gly Gly Gly Pro
 1   5   10   15
Thr Ala Tyr Pro Thr Ala Pro Tyr Leu Pro Asp Leu Pro Phe Thr Ala
            20   25   30
Leu Pro Pro Gly Ala Ser Asp Gly Arg Gly Arg Pro Ala Phe Pro Phe
        35   40   45
Ser Cys
    50

<210> 136
<211> 86
<212> PRT
<213> Homo sapiens

<400> 136
Cys Met Asp Tyr Asn Arg Thr Asp Leu Thr Thr Ala Ala Pro Ser Pro
 1   5   10   15
Pro Arg Arg Leu Pro Pro Pro Pro Pro Gly Glu Gln Pro Pro Ser Gly
            20   25   30
Ser Gly His Gly Arg Pro Pro Gly Ala Arg Pro Pro His Arg Gly Gly
        35   40   45
Gly Arg Gly Gly Gly Gly Asp Ala Ala Ala Pro Pro Ala Arg Gly Gly
    50   55   60
Gly Gly Gly Gly Lys Ala Arg Pro Pro Gly Gly Gly Ala Ala Pro Cys
65   70   75   80
Glu Pro Gly Cys Gln Cys
                85

<210> 137
<211> 37
<212> PRT
<213> Homo sapiens

<400> 137
Cys Met Glu Ala Pro Glu Asn Ala Thr Ala Gly Pro Ala Glu Pro His
 1   5   10   15
Lys Gly Leu Gly Met Leu Pro Val Ala Pro Arg Pro Ala Arg Pro Pro
            20   25   30
Gly Asp Leu Gly Pro
        35

<210> 138
<211> 38

<212> PRT
<213> Homo sapiens

<400> 138
Asn Tyr Leu Cys Val Glu Ala Pro Asn Asn Gly Ser Asp Glu Pro Thr
 1   5   10   15
Arg Gly Ser Gly Leu Phe Pro Pro Leu Phe Arg Pro Gln Arg Pro His
            20   25   30
Ser Ala Gln Glu His Pro
        35